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GENERAL STUDIES (TEST CODE : 1147)

Name of Candidate	Nihal Randhawa		
Medium Eng./Hindi	English	Registration Number	58233
Center	N/A	Date	28-Aug-2019

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
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17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

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1. Highlighting the issues faced in BOT and EPC models of infrastructure investment, explain how HAM can address these. **(150 words) 10**

अवसंरचना निवेश के BOT एवं EPC मॉडल के समक्ष आने वाली समस्याओं पर प्रकाश डालते हुए व्याख्या कीजिए कि HAM इनका किस प्रकार समाधान कर सकता है।

BOT (Build Operate & Transfer) ~~and~~, EPC (Engineering Procurement and Construction) and HAM (Hybrid Annuity Model) are 3 different forms of Public Private Partnership models with different obligations on the public and private bodies in each.

In BOT, the private body bids for the contract where design specifications are laid out. Then they build and after recuperating costs after operation for specified time period they tranfer ownership and control back to the govt.

In EPC, the private body bids, then the engineering part is the responsibility of the private org but the govt. is involved with regulation approval; land acquisition; buying equipment etc. The govt. then pays the pre decided amount to the body

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and takes ownership of the built project.

There were some flaws with both the ~~BOT~~ models

BOT	EPC
i) The pvt bodies may not be able to recoup money	i) The pvt. body has to put in all the money upfront.
ii) It's observed by the SC that the toll taxes continue even after all the money is recouped.	ii) Delays, rising land costs, equipment costs eat into the margins of the bidding party
iii) Pvt bodies ~~are~~ find it hard to clear the regulatory hurdles and land acquisition	iii) The low bids are often found to be too low to make project viable and the project gets stalled and public suffers.

As can be seen ~~HA~~ both BOT & EPC suffer from complementary issues, where in EPC major portion of the risk is on ~~EP public~~ private and ~~in HAM~~ vice versa is So HAM is a model where 40% of the funding is through BOT model and 60% through EPC. This is a best of both worlds deal as :-

i) Govt. can help in policy regulations, regulatory ~~clear~~ compliance, land acquisition etc.
ii) Govt. can provide Viability Gap Funding.
iii) It doesn't put a sudden strain on the exchequer
iv) The public can take advantage of private ~~ss~~ sector benefits.
v) The construction of more projects can start together.
vi) Pvt. sector can recoup some portion of money through ~~tolls~~ tolls or fees and other ~~to~~ via govt. hedging against shortfall in traffic or sudden increase in prices due to say land acquisition cost

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2. The investment rate in India has gradually declined after a historic high in the mid 2000s. Examine the reasons behind this trend. Discuss the steps required to revive investment for a sustained growth. (150 words) 10

भारत में निवेश दर, 21वीं सदी के प्रथम दशक के मध्य में एक ऐतिहासिक उछाल के उपरांत निरंतर घटती रही है। इस प्रवृत्ति के पीछे निहित कारणों का परीक्षण कीजिए। निरंतर वृद्धि हेतु निवेश को पुनर्जीवित करने के लिए आवश्यक कदमों पर चर्चा कीजिए।

Investment Rate in the economy is a predictor for the future growth prospects of the economy, in which light it's troubling that the investment rate in Indian economy hasn't touched the peaks it reached in 2000s.

Some of the reasons are :-

i) The Global Depression which started in 2008, the Sub Prime crisis from which the global economy has barely recovered.

ii) This sub prime crisis has affected Indian economy too, albeit it was more insulated than others and led to a slowdown in growth.

iii) Rise of NPA (Non Performing Assets) in Indian bank balance sheets which have made them unwilling to invest in new projects.

iv) Rising inflation in the early years of this decade.

v) Complex labour laws in this country inhibiting entrepeneurs and setting up of factories.

vi) Rising environmentalism has led to scuttling major projects like POSCO plant in Odisha.

vii) The unwise regulatory tax practice of retrograde

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amendment of law in Hutch Case has made investors wary. This has led to many startups being incorporated outside India so that they can be acquired at a later date as India's complex tax laws make the global giant MNC's like Facebook or Google unwilling to deal with it.

viii) Recently strengthening of dollar, rise of protectionism and raising of bond rate of US Treasury bonds have led to global investors investing in them to the detriments of India's FPI.

The reforms needed are :-

i Reforming India's tax laws and bringing them in line with global best practices.

ii) Improving India's 'ease of doing business' by making governance more accountable and transparent, reforming the regulatory practices required to be complied with, improving the arbitration mechanism and reducing bureaucratic discretion.

iii) Reforming labour laws and land laws to make them more practical and less idealistic.

iv) Improve India's image as a destination for FDI

To these ends, initiatives like Make in India, Start up India Skill India, automatic FDI, independent Monetary Policy Committee of RBI, inflation targeting are initiatives to directly or indirectly promote growth in investment and consequently the economy.

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3. The measurement of the extent of formal sector and formal employment is yet an unsettled matter in our economy. Comment. Also, mention the steps which the government has taken to improve its extent.

(150 words) 10

औपचारिक क्षेत्रक और औपचारिक रोजगार के विस्तार का मापन हमारी अर्थव्यवस्था में अभी भी एक अनसुलझा मामला है। टिप्पणी कीजिए। साथ ही, इसके विस्तार में सुधार हेतु सरकार द्वारा उठाए गए कदमों का उल्लेख कीजिए।

The definition of Formal and Informal Sectors is a contested arena. The definition of Formal Workers as those who either pay Direct Tax at Source or are covered within a welfare benefit programme like Pension or Healthcare (EPFO etc.) by their employers is another.

However both these definitions give contradictory numbers as only a miniscule percentage of people qualify for the tax bracket that pays income tax, while before GST and Demonetisation the extent of the informal economy was unknown.

In the Economic Survey a definition of formal companies was proposed, those who have a GST number and file returns under GSTN. It is hoped that this system can provide a continuous check on the financial dealings of these firms. The problem though is compounded by the lack of timely data, as employment surveys are only conducted

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after a long time.
Nevertheless, the govt. drive towards formalisation with its myriad benefits to the economy and society as a whole has picked pace recently with measures like :-

- Measures against black money. Investigation into leaks like Panama Papers, actions against 'hawala system', DTAA agreements with tax havens like Mauritius, voluntary tax disclosure scheme (with penalty) and then demonetisation.
- Change in labour code, introducing new schemes where EPFO, NPS etc. have laid obligations upon the employers and govt. to provide social security net. Also unique labour code provided to companies nicknamed 'Aadhar for Companies' will aid formalisation.
- The GST. The structure of having GST number for intra and inter state transport of goods, input tax credit creating a chain of formal ~~emplo~~ companies, ~~needing valid supply chain to~~

According to the Economic Survey, there has been a great increase in number of hitherto informal firms registering in GST network. Even though these firms don't need to pay tax yet they are now a part of the formal economy.

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4. In the context of major challenges that have restricted industrial growth, there is need for a new industrial policy to enable the industry to fulfill its role as the engine of growth and shoulder the responsibility of adding more value and jobs. Comment. **(150 words) 10**

औद्योगिक संवृद्धि को बाधित करने वाली प्रमुख चुनौतियों के संदर्भ में, उद्योग को संवृद्धि के वाहक के रूप में अपनी भूमिका के निर्वहन एवं अधिक मूल्यवर्धन और रोजगार में वृद्धि का उत्तरदायित्व संभालने में सक्षम बनाने हेतु एक नई औद्योगिक नीति की आवश्यकता है। टिप्पणी कीजिए।

Ans 4) Industrial growth is sorely needed for India to be able to successfully fulfill the aspirations of its youthful demographics who are now transitioning from a nearly 50% employment share of agriculture to the secondary and tertiary sectors.

However it has been remarked (by the Economic Survey among others) that India's growth has been a 'jobless growth'. The manufacturing sector hasn't been able to advance as much as was hoped for.

The reasons for this are:-

- The archaic labour ~~reform~~ laws. As these laws are more onerous for larger companies (in terms of no. of employees or capital investment) they inhibit the setting up of major large scale industries or the natural growth of MSME's or Startups to a Larger Company.

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- Rising NPA's and flight of capital of FPI and FDI has made banks unwilling to invest.
- Much of the ~~job~~ jobs seekers are unemployable.
- More conducive environment in countries like Vietnam & Bangladesh for more labour intensive industries.
- Dutch disease effect of software exports (Though Minor).
- These problems can be solved by the new vision articulated in the Draft New Industrial Policy of DIPP. Its salient features are:-
- Create Global Brands out of India.
- Enhance competitiveness of Indian Industry by bringing down cost associated with regulatory compliance, power, cost of capital and loans etc.
- Focus on labour intensive sectors, textiles, leather, footwear etc.
- Setting up Digital Infrastructure.
- Improving India's 'Ease of Doing Business'.
- Taxation reforms like simplifying GST.
- Innovation and R&D, Technology transfer, University-Industry linkage, respect for IPRs, simplifying the Patents Process, promoting PHD and research etc.
- Ensuring access to capital.

A comprehensive new industrial policy should be adopted to enable Industry to play its role as the engine of growth and to shoulder the responsibility of adding more value and jobs

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5. Providing social security, especially to those working in unorganised sector, is an important requirement to achieve the goal of inclusive growth. Discuss. (150 words) 10

सामाजिक सुरक्षा प्रदान करना, विशेषकर उन लोगों को जो असंगठित क्षेत्र में कार्यरत हैं, समावेशी विकास के लक्ष्य को प्राप्त करने के लिए एक महत्वपूर्ण आवश्यकता है। चर्चा कीजिए।

Inclusive Growth is one where equitable opportunities are provided and the benefits of economic growth reach all sections of society. In India (acc. to NSSO data) about 83% of all employed people are working in informal sector and face challenges like :-

- Less than minimum wage
- Poor working conditions with longer working hours.
- More incidences of poverty.

These problems highlight the necessity for providing social security not to those workers else incidents like a medical problem, unemployment, death or injury, retirement etc could lead to them slipping into destitution.

While the govt. has come up with some measures like Atal Pension Yojana, Rashtriya Swasthya Bima Yojana, National Health Protection Scheme and other schemes to cover the pension and healthcare portions of the social security net yet these schemes suffer from shortcomings :-

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- Poor design and implementation.
- Overlap b/w state and central schemes, as social security is in the concurrent list.
- Poor awareness about these schemes.
- Migrants often fall out of coverage.
- These schemes needed bank accounts which earlier most of the targetted beneficiaries lacked.

Some reforms that could be undertaken are:-

- Effective implementation of existing laws and schemes.
- Formalisation of the economy.
- Universal Health Insurance Scheme (like NHPS)
- Exploring out of the box solutions like Universal Basic Income.
- Increasing Financial Literacy and targetting financial schemes at the unorganised sector.
- Aadhar and JAM trinity based direct benefits transfer to be incorporated in policy design.

These proposals would require budgetary and political capital to be allocated so that India's growth can truly 'trickle down' to the masses.

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6. Assigning infrastructure status to the logistics industry is a good first move, but there are several other problems related to this sector that need to be addressed. Discuss. **(150 words) 10**

लॉजिस्टिक्स (संभार-तंत्र) उद्योग को अवसंरचना का दर्जा देना एक अच्छी आरंभिक पहल है, लेकिन इस क्षेत्रक से जुड़ी अन्य कई समस्याएं हैं जिनसे निपटने की आवश्यकता है। चर्चा कीजिए।

Logistics sector is tasked with management of flow of goods from point of origin to consumption.

A high performing logistics sector has a knock on effects on the rest of the economy causing a virtuous cycle of bringing down cost of manufacturing and products while enhancing trade. Keeping its importance in mind the govt has given infrastructure status to this sector:

- Facilitating Credit Flow to the sector
- Simplifying process of regulatory approval.
- Encouraging market accountability and attracting investments from debt, bonds, pension funds etc.

However these policy changes can't address all the issues faced by logistics sector:

- Lack of oversight. The industry is highly fragmented and diverse
- Lack of skilled manpower.
- Lopsided priorities. The railways have a huge demand via both freight and passengers. They do cross subsidisation. Also the

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fro goods trains are given lower priority compared to passenger trains. Thus, though railways are cheaper than roadways, they aren't that preferred.

- Poor quality highways, lacking lighting and maintenance coupled with poor storage facilities.
- Port sector issues. High turnaround times, lack of inland waterways, inadequate depth and berth space etc.

Thus, due to these problems the logistics cost of India is around 14% of GDP, compared to an avg. of 8% for developed nations

Reform measures are :-

- Appropriate skilling and regulations regarding driver skills, operational times, drug testing etc.
- Adoption of technology like GIS, GPS, RFID tags etc.
- Coordination amongst govt. agencies.
- Promotion of cheaper modes of transport like developing dedicated freight railways or inland waterways.

In this regard govt. schemes like Bharatmala, GST, Sagarmala are steps in the right direction. Logistics reforms are urgently needed to promote Indian Exports, reduce inflation and CAD deficit (oil costs) and kickstart the economy into a higher gear.

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7. In view of the direct link between tenure security and food security, there is need for a conducive legal framework for land rights in India. Discuss. (150 words) 10

पट्टे की सुरक्षा और खाद्य सुरक्षा के बीच प्रत्यक्ष संबंध को ध्यान में रखते हुए, भारत में भूमि अधिकारों के लिए एक हितकर कानूनी ढांचे की आवश्यकता है। चर्चा कीजिए।

India's complex land structure and laws are a result of the British Zamindari, Ryotwari and Mahalwari schemes with institutional reforms such as land tenancy right and Abolition of Zamindari attempted post independence.

This has led to a situation of 'land to the tillers' where fragmented land holdings are intensively tilled for subsistence agriculture schemes.

The tenancy laws are also primarily being in favour of tenants and land ceiling acts have led to a situation where land owners let tenants or sharecroppers informally cultivate the land.

The small land holdings size means that if the crop fail then the tenants neither have access to food from crops, money from selling extra produce or the governmental welfare schemes. ~~like~~ / So these are interlinked:-

- Tenants do not invest in improving the land and yield like mechanisation, irrigation etc.

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- They do not have access to govt. schemes like loans, insurance etc. as they don't have rights to the land. (Informal)
- A failed yield affects the poor tenants disproportionately.
- Strict ~~to~~ laws lead to owners preferring to keep land uncultivated reducing food yield overall.

Also the corporatisation of agriculture with many acres being farmed at once to achieve bumper crops isn't possible.

Thus, the land laws reform is a priority for any govt. in India. A transparent and fair land leasing laws ~~which~~ is necessary.

The Niti Aayog proposed Model Land Leasing Law:-

- Formal lease agreement between owner & cultivator
- Creation of Special Land Tribunals for adjudication.
- Facilitation of credit against the expected output for the tenant.
- Digitisation of Land Records as envisaged by NLRMP.

As this is a state matter, this model law can be adopted by the states with appropriate modifications in order to bring out the full potential of India's Agriculture.

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8. Minimum Support Price (MSP) of crops is a short term solution for agricultural distress which creates long term problems. Examine. Suggest measures to overcome the the limitations of the MSP regime.

(150 words) 10

फसलों के लिए न्यूनतम समर्थन मूल्य (MSP) कृषि संकट का एक अल्पकालिक समाधान है जो दीर्घकालीन समस्याएं पैदा करता है। परीक्षण कीजिए। MSP व्यवस्था की कमियों से निजात पाने हेतु उपाय सुझाइए।

MSP is a scheme of the government to :-

- Encourage farmers to grow crops.
- Insure farmers against sudden drop in price or demand.
- Insure customers against sudden rise in price and ensure availability.

To this end the Govt. announces the MSP at which FCI will procure crops from farmers.

However the model has many long term problematic effects :-

- Distorts production as farmers grow crops with high MSP rather than crops suited to the climate. This causes environmental problems, loss of fertility, overproduction of certain crops and shortfall in others which the govt. has to bear the burden of.
- Only the rich and aware landowners (around 6%) get their crops procured, mostly the poorer landless or subsistence farmers (usually in the Eastern states) do not benefit.
- Crops like Rice or Wheat are incentivised so grown in semi-arid regions like Punjab.

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- MSP is intended as insurance yet Swaminathan committee recommends increasing it.
- Public Stockholding Programmes are getting tougher to support as per WTO norms.
- Counter Cyclical approach followed by farmers ~~with regard~~ creating glut shortfall cycles in crops.

The reforms in MSP ~~are~~ could be to increase the scope of procurement both in variety of crops and regional imbalance being corrected; meaningful consultation with ~~state~~ govt. ensuring that environmentally suitable crops are planted; announcing MSP in advance of sowing season ~~etc~~.

Other schemes are :-

- Price Deficiency Payment where the ~~deficiency~~ difference in MSP and actual selling price is paid by govt.
- Direct Income Transfer to farmers on basis of land sowed. This will reduce the distortionary effect of MSP and subsidies.

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9. With women playing an increasingly significant role in the Indian agriculture sector, gender specific interventions can be the key to improving agricultural productivity. Discuss. (150 words) 10

भारतीय कृषि क्षेत्रक में महिलाओं की बढ़ती भूमिका को ध्यान में रखते हुए, कृषि उत्पादकता में सुधार लाने के लिए लिंग विशिष्ट हस्तक्षेप महत्वपूर्ण हो सकते हैं। चर्चा कीजिए।

With growing rural-urban migration of men being observed, now almost 42% of the working force engaged in agricultural and farm activities are women.

This 'feminisation' of the sector though hasn't resulted in appropriate policy changes to address the altered scenario.

The challenges that women face are :-

- Enhanced work burden as they have to deal with domestic and agricultural issues.
- Most (82%) of the land is in name of men, so women have difficulties getting access to formalised or institutionalised credit.
- Limited educational qualifications and lack of skilling.
- Societal constraints.

The gender specific interventions needed are :-

- To leverage the 33% quota for women in Panchayati Raj institutions. They can address ~~raise~~ concerns of women (locally) and ensure govt. schemes are suited for women's needs.

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- Access to primary health care, medicines and facilities of creche, children's check ups etc. at Aanganwadi centres or PHC's.
- Encouraging Self Help Groups which have historically been successful in promoting access to credit for members.
- Setting up of cooperatives to increase scale and income.
- Govt. schemes to educate and make women aware of marketing, technology, credit etc.
- Changing inheritance laws denying women access to land.

While govt. schemes like MUDRA have provision of preferential credit to women; LPG schemes and other direct benefit transfer to be to the account of eldest female in household; MNREGA to have women centric guidelines etc. demonstrate growing awareness of the more entrepreneurial role of women in the rural economy, the requirement is of an inclusive but transformative gender policy so that women can fulfill this potential.

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10. Enumerating the factors that determine a nation's energy-mix, comment on the need for having a diversified fuel basket for meeting India's future energy demands. **(150 words) 10**

किसी राष्ट्र के ऊर्जा-समिश्र (एनर्जी-मिक्स) को निर्धारित करने वाले कारकों को सूचीबद्ध करते हुए, भारत की भावी ऊर्जा मांगों को पूरा करने हेतु एक विविधिकृत फ्यूल बास्केट के होने की आवश्यकता पर टिप्पणी कीजिए।

Energy Mix is the combination of various fuels and energy sources that fulfill the varied demands of the nation. They could be conventional like Wood, Coal, Oil, Petrol etc or unconventional like Hydropower, Solar Power, Nuclear, Wind etc.

The factors that affect the composition of this basket are :-

- Availability: Some nations like Saudi Arabia have oil reserves and can cheaply ~~sol~~ fulfill their energy demands from them.
- Demand : The manufacturing ~~and agricu~~ industry is power hungry. Nations with ~~manu~~ developed economies generally have higher energy requirement.
- Storage: Conventional sources lik coal or petrol can be stored while solar or wind cannot be used as a buffer.
- Technology: Nuclear power plants are advanced tech. ~~So co~~ which constrains their use.
- Environmental Concerns: Conventional sources pollute the earth and lead to climate change
- Policy Choices : This is a wide ranging reason which could affect the mix.

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In India while more than 50% of our energy needs are met via coal on account of cheap price, availability, ability to scale as per demand, transportability, versatility etc we are trying the increase the share of solar and other renewable forms because:

- Per Capita Consumption of Energy increases as the economy grows.
- The non renewable sources are imported and India wishes to be self reliant.
- The renewable sources are becoming increasingly competitive in price with improvement in tech.
- Tech. advancement can like battery storage or smart grids can address shortcomings of solar energy with regards to the scaling with demand shortcoming.
- Environmentally better.

As a growing economy India's macroeconomic weaknesses which occur as a cause of importing fuel from the middle east needs to be addressed with diversification of its energy mix.

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11. Highlight the importance of MSME sector in India's economy. Also, identifying the challenges, suggest some policy recommendations to ensure their sustenance and competitive growth. **(250 words) 15**

भारत की अर्थव्यवस्था में MSME क्षेत्रक के महत्व पर प्रकाश डालिए। साथ ही, चुनौतियों की पहचान करते हुए उन्हें संपोषित करने और उनके प्रतिस्पर्धात्मक वृद्धि को सुनिश्चित करने के लिए कुछ नीतिगत अनुशंसाओं का सुझाव दीजिए।

MSME are those enterprises which have annual turnover of 5 Crore (~~Small~~), 75 Crore (Small) and 250 crores (Medium). Micro These are usually in the sectors of textile, food processing etc.

Importance of MSME :-

- Backbone of industrial sector, almost 90% of industrial units are MSME.
- They provide large scale employment.
- They help industrialise rural & backward areas.
- They promote equitable and inclusive growth.
- 50% of manufacturing exports are from MSME sector.
- Their flexibility means they can quickly innovate and excel (without inertia) due to changing conditions.

Challenges faced by them :

- Credit Crunch.
- Post liberalisation and after FDI norms being relaxed, they face intense competition.
- Skilled ~~labor~~ workers are unavailable.
- Complex labour, land and regulatory laws to be complied with.

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- Unavailability of power, reliable transport and other infrastructural shortcomings.
- Lack of marketing strategy and access to latest technology.
- Disruption due to demonetisation and GST.

Policy recommendations to improve prospects :-

- Availability of Finance by schemes such as MUDRA; private capital; venture capital; P2P lending; Credit Guarantee Scheme etc.
- Promotion of entrepreneurship by Start up India, Skill India; Stand Up India etc.
- Promoting indigenous manufacturing with schemes like Make in India and GeM 2.0 procuring from MSME's.
- Skill development and training through ~~IIT's~~ ITI's.
- Infrastructure upgradation.
- Reforming labour and land laws.

MSME's have the ability to propell India's growth story. The apt environment needs to be provided for them to truly flourish.

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12. A near stagnant tax to GDP ratio for the country since decades reflects not only non-fruition of efforts to increase it but also underlying structural issues with tax regime. Comment. **(250 words) 15**

राष्ट्र के लिए कई दशकों से कर-GDP अनुपात का लगभग स्थिर रहना, न केवल इसको बढ़ाने हेतु किए जाने के प्रयासों के फलीभूत न होने, अपितु कर व्यवस्था में अंतर्निहित संरचनागत समस्याओं को भी प्रतिबिंबित करता है। टिप्पणी कीजिए।

India's tax to GDP ratio is a meagre 16.6% which is low compared to ~~con~~ developed countries or even emerging economies.

Reasons for this low number are :-

- Low direct tax base. According to an income tax dept. report only 1.6% of the population pays income tax.
- Parallel Economy. A black money led economy which pays no taxes worth almost 1/4th of GDP.
- Informal Sector being the largest source of employment (92%) and infamous for tax evasion.
- Tax avoidance techniques like Swiss banks for hiding money, tax havens etc.
- Tax exemption policies like no tax on agricultural income have created loopholes.
- Understaffed revenue officials without appropriate resources and mandate.
- Legislative sprawl. India's tax code is one of the most complex and a major litigation source

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is that of taxmen and assessees which often are decided against the taxmen.

- Poor enforcement of laws, with compliance cost considered higher than non compliance.

While recent policy initiatives such as voluntary disclosure of black money, demonetisation, GST etc. have sought to increase the ratio yet some other reforms are still needed.

Way Forward :-

- GST has helped to increase the prospects of indirect tax increasing by increasing the no. of registered tax payers by almost half. Yet such a reform for direct tax code is still on the cards.
- A cleaner, simpler and more efficient direct tax code needs to be introduced.
- Provision of rewards and protection for whistleblowers revealing black money. This can be publicized and made easier

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- A predictable, fast and more efficient tribunal or adjudicating mechanism to sort out tax disputes. This will reduce burden of taxpayers, judiciary and even the IRS.
- Increased efforts to formalise the economy.
- Tax exemptions and subsidies to be rationalised.
- Digitisation of economy.
- Increase non compliance cost and decrease compliance cost.
- Laws like GAAR to reduce tax evasion. Also measures like Double Tax avoidance agreement, Transfer Pricing agreement etc. need to be addressed

India needs to avoid falling (as the Economic Survey put it) into a 'Low Equilibrium Trap' where due to low revenue the govt. doesn't provide services and due to poor performance people don't comply with directives to pay more taxes.

An increase in tax to GDP ratio is must if India is to become a developed country

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13. Adhering to fiscal discipline is considered as a hallmark of sound financial management by government. Elaborate. To what extent does the Budget 2018 incorporates fiscal discipline vis-a-vis competing targets of the government? **(250 words) 15**

राजकोषीय अनुशासन के पालन को सरकार द्वारा स्वस्थ वित्तीय प्रबंधन की एक कसौटी माना जाता है। सविस्तार वर्णन कीजिए। 2018 का बजट किस सीमा तक सरकार के प्रतिस्पर्धी लक्ष्यों एवं राजकोषीय अनुशासन को समाविष्ट करता है?

Fiscal discipline can be defined as a govt. adhering to its pre set spending limits (keeping in mind the revenue) for the interests of long term financial health while ensuring ~~the~~ smooth operations at present. This discipline is essential to improve and sustain the economic growth, maintain macroeconomic stability and reduce vulnerabilities.

The downfall of not being disciplined are :-

- High budgetary deficit, loans and bailouts pushing burden on future generations.
- High cost of financing growth by ~~borr~~ borrowing money via loans or bonds at exorbitant rates.
- Downgrade of sovereign bond debt rating increasing borrowing cost.
- Loss in credibility of govt. in domestic and international sectors.

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- Depreciation of currency and rise in inflation.

- The 2018 Budget addressed some major reforms aimed at various sectors like:-
- Agrarian sector: Increasing MSP to 1.5 times production cost, doubling allocation for food processing sector, schemes promoting horticulture and bamboo cultivation etc.
- Healthcare: The ambitious NHPS: Ayushman Bharat scheme providing insurance to 10 crore families.
- Education: Reforms for educationally deprived sections.
- Miscellaneous: Fisheries reform; free gas connection; creating jobs; boosting growth etc.

However financing these schemes can prove to be tricky while maintaining fiscal discipline. While the govt. has adhered (majorly) by NK Singh Committee recommendations based on the FRBM bill there are some slippages concerns:-

- Increase in Revenue Deficit.
- The Fiscal Deficit target has been set higher than 3% (As per FRBM bill).

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- GST and demonetisation have led to slowdown as the economy recovers from these structural shocks. Also the GST revenue realised is lower than expected.
- Rising global oil prices have led to increase in Current Account Deficit.
- Meagre allocation of resources for ambitious schemes such as NHPS which is to cover 10 crore families has only been allocated 2 ~~crore~~ billion Rupees.

Thus, while political populism demands that caution be thrown to the winds yet its clear that the govt. has broadly tried to balance these 2 competing claims of short term growth and long term stability.

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14. The role of international trade in achieving a quicker pace of economic development is well recognized. What are the benefits of international trade for a developing country like India? Highlight the challenges that India faces in improving its share in world trade. **(250 words) 15**

आर्थिक विकास की द्रुत गति को हासिल करने में अंतरराष्ट्रीय व्यापार की भूमिका को बखूबी मान्यता प्राप्त है। भारत जैसे विकासशील राष्ट्र के लिए अंतरराष्ट्रीय व्यापार के क्या लाभ हैं? विश्व व्यापार में अपनी भागीदारी बढ़ाने में भारत द्वारा सामना की जाने वाली चुनौतियों पर प्रकाश डालिए।

Post 1991 and liberalisation reforms, International Trade has been a major driver in India's growth success story. International Trade accounts for around 20% of India's GDP.

Benefits :-

- Enhances competition for the domestic industries making them more efficient, cheaper, better managed etc.
- FDI and FPI are a major source of credit.
- FDI brings with it technological know how, new skills and machines, new management and administrative paradigm, promoting R&D etc.
- Export diversification where India can focus on its strengths and import the products it doesn't have. This makes global trade more efficient at using resources and skills

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- Promote access to new markets for India's goods.
- More variety and healthy competition so that consumers benefit.
- Open trade promotes India's industries to go global.
- Employment Opportunities and increase in quality of living.
- Trade is a good way to increase interdependence between countries and reduce conflicts.
- Worldwide awareness of India's culture through globalisation and tourism promotion.

While WTO and globalisation is considered to be a system which benefits all its participants yet it can't be denied that the benefits are unequal. Some of the challenges are :-

- Developing countries export primary goods like iron ore, minerals, oil and import finished goods like steels, refined petroleum products etc. The former are cheaper than the latter leading to losses

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- Rise in protectionism in the west and subtle roadblocks being put in WTO's running.
- Trade wars and ~~export~~ tariffs.
- WTO norms such as agricultural subsidies, export subsidies etc. favour the 'North' over 'South'. (global)
- IPR norms may prevent domestic supply of essential medicines.

Some of the unique challenges that India faces are infrastructural bottlenecks, high costs of goods production, excessive red tapism, complex regulations on trade, quotas etc.

So a forward looking policy that rationalises India's tariff structure while ensuring compliance to non tariff barriers (Phyto Sanitary Standards et al) will improve trade. Further compliance with WTO's Trade Facilitation Agreement can increase trade.

This is a must to achieve sustainable growth in the long run.

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15. In the light of increasing NPAs and frauds, the twin balance sheet problem has grown immensely. Comment on the issue and analyse the potential of the Insolvency and Bankruptcy Code to be a game changer for Indian economy's health and long-term growth. **(250 words) 15**

NPAs एवं धोखाधड़ी की बढ़ती घटनाओं के चलते, दोहरे तुलन पत्र (ट्विन बैलेंस शीट) की समस्या में अत्यधिक वृद्धि हुई है। इस मुद्दे पर टिप्पणी कीजिए तथा भारतीय अर्थव्यवस्था की दशा और दीर्घकालिक संवृद्धि के लिए दिवाला एवं दिवालियापन संहिता में एक गेम चेंजर होने की क्षमता का विश्लेषण कीजिए।

Twin Balance Sheet Problem refers to the overstressed and indebted companies and rising NPA's in the Public Sector Banks

The companies have stalled projects and high debts, so can't pay back the loans while the banks can't lend any more money as they have huge liabilities (or non performing assets) on their balance sheets.

This can be traced back to counter cyclic behaviour of firms.

Economic Boom → Companies want to start new projects → Banks want to lend more money

Just Before 2007, global boom period

Global Slowdown + Regulatory delays + Increase in Interest Rates

Around 2008

Rise in NPA'S and Overleveraged Companies.

Stalled Projects

Post 2008,

Depreciation in the Economy

Reduced growth rates

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To resolve this the Insolvency and Bankruptcy Code has been introduced by the govt. It has following benefits :-

- It can resolve the bankruptcies in a systemic and time bound manner.
- Promote confidence in investors
- Provide quick exit to entrepreneurs as statistically most start ups fail. This way they're not stuck in a dead end.
- Cross Border Insolvency is addressed
- Foreign creditor's concerns are addressed
- Transparency in process.
- The staff and other physical assets can be put to productive usage quickly helping the economy.
- It has measures for restarting the company by changing management, restructuring loans etc. This way the savable companies can be salvaged.

However the IBC can only be a success if proactive changes are done where needed and the govt. courts, tribunals,

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Insolvency board, creditors etc. and the other stakeholders adhere to the spirit of the law.

The IBC is only one piece of the puzzle, to safeguard the Financial Institutions the govt. has brought in FRDI bill too. This will help to prevent them from bankruptcy.

Further recapitalisation of banks, merges of banks; bad bank (PARA); greater checks by RBI etc are proposed to resolve this situation.

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16. Enhancing private infrastructure spending and revival of stalled projects is critical to the success of Bharatmala Pariyojana. Discuss. Also enumerate measures taken by the government to revive stalled projects on National Highways. **(250 words) 15**

निजी अवसंरचना व्यय में वृद्धि एवं अवरुद्ध परियोजनाओं का पुनरुद्धार भारतमाला परियोजना की सफलता हेतु महत्वपूर्ण है। चर्चा कीजिए। साथ ही, राष्ट्रीय राजमार्गों से संबद्ध अवरुद्ध परियोजनाओं के पुनरुद्धार के लिए सरकार द्वारा उठाए गए कदमों को सूचीबद्ध कीजिए।

Bharatmala Pariyojana is an infrastructure project that will focus on optimizing efficiency of transporting good across the country. It's an umbrella project for development of highways, roads, rail tracks etc to achieve this.

This is an expensive project and to achieve this a lot of the funding (₹1 trillion) has to come through private sources.

In the current scenario of Twin Balance Sheet Problem, Stalled Projects, Overleveraged Companies, Banks unwilling to loan this seems improbable. Also govt. issues with regulatory clearances, environmental clearances, land acquisition etc are also a

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Although the investment in infrastructure has been increasing yet it is still short of the benchmark. Thus enhancing and expanding private participation as well as revival of stalled projects is critical for the success of the Bharatmala Parivojana.

Measures taken by govt. to revive stalled projects on the highways are:-

- The NHAI has been monitoring them. Where physical completion has been achieved there has been fund infusion to complete them.
- Steps have been taken for streamlining land acquisition and environment clearances.
- Frequency of reviews has been increased, setting up of dispute resolution mechanism, exit clauses etc. to make these projects more attractive.
- Recapitalisation of banks to encourage lending.

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- IBC promoting quick resolution of insolvency of companies.
- Introduction of Hybrid Annuity Model overcoming shortcomings of Build Operate Transfer and Engineering Procurement Completion model as modes of PPP investment.
- Monetisation of projects through tolls on already operational projects to get fresh capital.
- Floating bonds to get more capital.

To further this renegotiation of stalled projects must be undertaken. A model PPP agreement is being finalised which should be adopted in future agreements

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17. Going forward, the allied sectors will play a critical role in increasing the resilience and improving economic returns in agriculture. Discuss. **(250 words) 15**

आगामी समय में, संबद्ध क्षेत्रक कृषि में लचीलापन बढ़ाने एवं आर्थिक प्रतिफल में सुधार लाने में एक महत्वपूर्ण भूमिका निभाएंगे। चर्चा कीजिए।

Fisheries, Livestock, Animal Husbandry, Floriculture, Horticulture, Sericulture, Forestry etc. are some of the allied sector activities.

These along with agriculture form the backbone of the rural economy with nearly 49% of ~~labo~~ employment and 20% of GDP production.

The benefits are :-

- Animal husbandry and livestock rearing is a key livelihood and risk mitigation strategy. They can be depended upon if crop fails.
- Livestock wealth is equitably distributed across India. Even small farmers have access to livestock.
- Their interlinkage with agriculture as a source of labour, manure and consumer of fodder enhances output and profits.

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- Fisheries: India is leading produces in the world.
- Provides access to cheap and healthy protein.
- Self employment opportunities to the coastal villages.
- India can export fish to other countries and do value enhancement post food processing.
- Supplements the income of farmers
- Horticulture can be a cash crop, if returns from other crops are low these can be high.
- Different climatic conditions can practice it.
- A form of commercial agriculture, generally practiced near cities providing greater income than average.
- Great scope for value addition via food processing (Like Jams, Pickles etc.)
- Agro forestry can benefit the environment, reduce soil degradation, increase income via selling wood etc.

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- These activities can diversify the income sources, hedge against bad crops or climatic conditions so in a way they ~~are~~ should be promoted to make India's agriculture truly sustainable and profitable.

To achieve the goal of doubling farmer's income by 2022, these allied activities are essential and should be promoted.

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18. Enumerate the factors that determine cropping pattern in an agricultural region. Discuss the need for diversification in context of problems being faced by monoculture regions in India. **(250 words) 15**

किसी कृषि क्षेत्र में फसल पद्धति को निर्धारित करने वाले कारकों को सूचीबद्ध कीजिए। भारत में एकल फसली क्षेत्रों द्वारा सामना की जा रही समस्याओं के संदर्भ में फसल विविधीकरण की आवश्यकता की चर्चा कीजिए।

Cropping pattern refers to type of crops grown, no. of times grown in an year (Cropping Seasons) and ~~and~~ methodology of farming (Mechanised or Manual etc.).

It has both spatial & temporal dimensions. Some of the factors influencing it in India are:

- Climate: Some crops are suited more to a particular climate.
- ~~Topography~~ Climate is a consequence of geography, topography, latitude, proximity to sea etc.
- Technology: Some seeds are fast growing so more crops can be sown in ~~a year~~ year.
- Govt. Policies: MSP promotes growth of rice and ~~cor~~ wheat as they are directly procured. In general the crops that are favoured by govt. policies are grown over the ones that are not.
- Demand

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- Farm Size: Plantation crops can't be grown in small landholdings.
- Access to water.
- Access to fertilizers.
- Self Needs: Most of the farming is for self sufficiency.
- Access to Labour and Technology.
- Behavioral Factors: The farmer ultimately decides. So his decision is also based on feeling, history, inertia, comfort zone, price of last years crops etc.

So with these factors in India we have mostly small land holdings, mostly cultivating rice & wheat, with intensive cultivation and depending on region 2 or 3 cropping seasons per year. In regions with availability of irrigation and fertilisers we ~~ha~~ observe monocultures. Cultivation of one type of crop for many years at a time. The ill effects of this are :-

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- Declining fertility of soil as essential nutrients are never replenished.
- Declining productivity.
- Lower fertiliser effectiveness leading to over use and leaching.
- Chances of a pest affecting that crop increases with more exposure to it.

Hence crop diversification needs to be encouraged. High value crops like horticulture can be encouraged. Also govt. policies like MSP need to be reformed to make all crops equally profitable. Farmers need to be sensitised on this issue.

The govt. is taking steps like Crop Diversification Programme, National Horticulture Mission, Price Deficiency Payment etc.

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19. It is argued that fertilizer subsidies have a negative impact on promoting Organic farming in India. Comment. Also, critically analyse the advantages of replacing direct benefit transfer in fertilizers with direct income support for farmers. **(250 words) 15**

यह तर्क दिया जाता है कि भारत में जैविक खेती को बढ़ावा देने में उर्वरक सब्सिडी का एक नकारात्मक प्रभाव रहा है। टिप्पणी कीजिए। साथ ही, उर्वरकों के लिए प्रत्यक्ष लाभ अंतरण के बदले किसानों को प्रत्यक्ष आय सहायता प्रदान करने के फायदों का आलोचनात्मक विश्लेषण कीजिए।

To promote crop yield the government ~~ofto~~ has subsidised the potash, nitrogen and potassium based fertilisers in India.

~~However the negative effects of this are:~~

~~- Massive drain on the treasury.~~

However they hamper organic farming (which is natural, i.e. no fertilisers, GM seeds, herbicides etc) :

- Make chemical farming inordinately productive.
- Make chemical farming artificially profitable by reducing input cost relative to organic.
- Inhibit adoption of organic farming.
- Overuse of fertilisers leads to seepage or ~~lithage~~ leakage affecting the nearby organic farms.
- Corporate interests demand subsidies be retained.
- Reduce interest in manufacturing organic fertilisers.

Moreover the fertiliser programme suffers from leakages and misappropriation of fertilisers

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to be sold in other countries or used for other purposes causing huge loss to the treasury.

Overuse of cheap fertilisers (nitrogen based) has led to soil degradation.

Thus, centre has decided to (on a pilot project basis) replace fertilisers subsidy with direct benefit transfer (DBT).

In this scheme the money (of subsidy) is given to factories and sale is through point of sale (PoS) devices to Aadhar identified beneficiaries.

However in direct income support (DIS) monetary assistance is provided to farmers directly (JAM trinity) into their bank accounts and fertilisers sold at market rate. Advantages of DIS over DBT :-

- More transparency.
- Doesn't distort market as companies aren't incentivised to produce more than market demand and compromise on quality

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- Based on hectares so farmer doesn't overuse.
- More equitable ~~as others~~ and crop neutral.

Disadvantages :-

- Huge financial commitment.
- Identification of beneficiaries as informal tenants and sharecroppers may be left out. Also those outside JAM coverage.
- Income support may be diverted for other uses.
- Inflation would increase, no check on price of fertilisers or supply.
- Improper land records would hamper actual amount of subsidy calculation.

Hence, both these schemes should be tried as pilot projects and their drawbacks carefully studied before a final decision is made.

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20. What do you understand by Seed Replacement Rate? Explaining the concept of breeder, foundation and certified seeds, highlight the major policy initiatives taken in order to address the challenge of quality seed availability to farmers. **(250 words) 15**

बीज प्रतिस्थापन दर (सीड रिप्लेसमेंट रेट) से आप क्या समझते हैं? ब्रीडर, फाउंडेशन और प्रमाणित बीजों की अवधारणा की व्याख्या करते हुए, किसानों के लिए गुणवत्तापरक बीजों की उपलब्धता की चुनौती का समाधान करने हेतु की गई प्रमुख नीतिगत पहलों पर प्रकाश डालिए।

Seed Replacement Rate is ratio of total crop area sown with certified / quality seeds compared to that sown with farm saved seeds. ~~This tells us the~~ As certified seeds have higher yield and better quality yield this tells us the chances of higher productivity of yield

Breeder seeds are those where the crop progeny can be used as ~~breeder~~ foundation seeds ~~themselves~~ as they can reproduce because they are 100% physically and genetically pure.

Foundation are progeny of breeder seeds. They though give rise to more foundation seeds. ~~so~~

Certified seeds are those which come up to prescribed standards amongst the progeny of foundation seeds.

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Seeds being one of the primary inputs that leads to a successful crop yield the govt. has taken various policy measures to ensure availability of high quality seeds :-

- National mission on oilseeds and palm.
- Setting up of Plant Breeder Institutes.
- Setting up of Agricultural Research Universities.
- Establishing ICAR (Indian Council of Agricultural Research).
- Seed certification agencies to certify seeds.
- National Seeds Programme as a precursor to the Green Revolution.
- Measures to allow safe (environmentally and otherwise) Genetically Modified crops like cotton into India with appropriate IPR rights to protect the interests (legitimate) of these companies.
- Policies like National Seed Policy, Seed Banks, Seed hubs, Seed Summits etc.

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The Ashok Dalwai Committee as a means of doubling farmers income by 2022 has suggested to increase SRR; replace old seeds with new to increase yield; promote hybrid technology; strengthen seed testing agencies; promote export of seeds; adopt uniform seed licensing policy and promote public bodies in this sector.

These steps will increase availability of quality seeds and decrease production cost and risk for farmers, adding to their income.

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GENERAL STUDIES (TEST CODE : 2367)

Name of Candidate	Nihal Randhawa		
Medium Eng./Hindi	English	Registration Number	
Center	Home	Date	10th Sep 2024

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **HINDI & ENGLISH.**
   इसमें बीस प्रश्न हैं **हिन्दी और अंग्रेजी** में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

Is student recommended for One-to-One mentoring?

Recommended	Strongly Recommended

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EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

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Q1. मौर्य कला न केवल विदेशी प्रभावों से प्रेरित थी, बल्कि देशज परंपराओं की निरंतरता भी थी। स्पष्ट कीजिए। (उत्तर 150 शब्दों में दीजिए)

The Mauryan art was not only inspired by foreign influences but was also a continuation of indigenous traditions. Elucidate. (Answer in 150 words) 10

The Mauryan Empire was the 1st Great Empire in Indian history which incorporated most of Northern and Central India and parts of Southern Peninsula as well. Its art in form of Stupas; Cave Architecture; Wall Carvings; Pillars etc contains much significance

Foreign Influence on Mauryan Art

1) Persian influence seen in Polished Pillars such as Lion Capital at Sarnath.

2) Persian influence on monolithic stone carvings of animals such as elephants, lions, bulls etc. atop a round pillar similar to those seen at Persepolis.

3) Greek influence seen in hyper realistic carvings of animals in sculpture form.

4) Persian influence seen in Ashokan inscriptions similar to those issued by ~~Darius~~ the Great Darius

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Continuation of Indigenous Traditions

1) Stupas like Sanchi Stupa were a continuation of Buddhist votive tradition

2) Rock cut architecture like at Barabar Caves continuation of Shramanic Practices of Jains, Ajivikas or Buddhist monks – Chaitya and Viharas

3) Relief carvings around Torana of Sanchi Stupa had description of scenes from Jataka Tales.

4) Incorporation of local cult traditions in form of Asparas, Yakshas and Naga depictions.

The timeless and universal aspect of Mauryan Art can be realised if we consider that even today the National Emblem – Ashokan Chakra at and National Flag are inspired from Mauryan Arts.

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Q2. औपनिवेशिक भारत से अन्य ब्रिटिश उपनिवेशों में होने वाले प्रवासन के विभिन्न प्रकार क्या थे? इसने भारत में ब्रिटिश शासन को किस प्रकार प्रभावित किया? (उत्तर 150 शब्दों में दीजिए)

What were the different types of migrations from colonial India to other British colonies? How did it impact the British rule in India? (Answer in 150 words) 10

Colonial Rule in India had many out-migrations from India to other British Commonwealth colonies.

Types of Migrations from Colonial India

1) Indentured Labour: a) Consequence of worldwide ban on slavery imposed by Britids in 1830's.

b) Demand for plantation workers in Coffee, Rubber, Sugar etc. in places like FIJI; SEYCHELLES; WEST INDIES

c) Poor people from populous areas of United Provinces, Bihar, Bengal etc. went by signing on exploitative contracts for decades long indentured servitude.

2) Tamilians to Sri lanka: a) Not indentured labour but exploitative work conditions

b) For tea, coffee plantations in Northern Sri Lanka.

3) Policemen in South East Asian Colonies:

a) To maintain Britids dominions in Hong Kong, Singapore etc.

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4) Traders in Africa; a) Mostly Gujarati, Sindhi, Marwaris migrating to South Africa, Uganda, Kenya etc as small traders.

5) Professional Migration: a) Skilled and educated Indians migrated to places like New Zealand, Australia, Canada to work as engineers, doctors, lawyers etc.

b) Post WW1 many punjabis migrated as farmers to Canada.

Impact on British Rule in India

1) Reduced unemployment and distress (rural) in India.

2) Diaspora politics started influencing freedom struggle as well. Prominent eg. being Mahatma Gandhi's experiences in South Africa

3) Indian Army and Police forces helped consolidate British control over the globe. Thus, indirectly maintaining British Rule in India.

So we can see the importance of these mass movements of people to the history of those tumultuous times.

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Q3. 1960 का दशक भारत के लिए संकट और परिवर्तन दोनों का दशक था। स्पष्ट कीजिए। (उत्तर 150 शब्दों में दीजिए)

The 1960s was a decade of both peril and transformation for India. Explain. (Answer in 150 words) 10

The 1960's was a transitional decade for India as it moved on from the fervour of a new found youthful Independence to the more cynical era of the 70's and beyond.

1960's as a Perilous Decade

1) Politically - a) Death of Jawaharlal Nehru, only PM India had ever known.

b) Decline of Congress System, especially in states

c) 2 major wars, 1962 Indo-China War and 1965 India Pakistan War.

d) India going through 3 PMs, due to death of Lal Bahadur Shastri in Tashkent.

2) Economically - a) Planned for rate of growth didn't happen.

b) Ship to Mouth existence due to PL 480 dependence.

3) Socially - Resurgence of Communal riots starting with Jabalpur's riot.

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Geopolitically: a) Breakdown of diplomatic ties with China and Pakistan.

b) USSR not supporting India in 1962 forcing rethink on non alignment.

1960's as a Transformative Decade

1) Rise of political alternatives to Congress like Left in Bengal and Kerala.
2) More pronounced leftward shift economically with greater Bank Nationalisation focus.
3) Refocus on Military Modernisation showing results in 1965 and then in 1971.
4) Deepening of ties with USSR.
5) Green Revolution started which turned India from a net food importer to an exporter presently.
6) De-Institutionalisation of Congress with split into Congress (O) [Syndicate] and Congress [I] [India] with profound impact on India later on.

Thus, we see the crucial legacy of the 1960's in Indian history and politics.

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Q4. 1979 की ईरान की क्रांति ने न केवल क्षेत्रीय गतिशीलता को बदल दिया, बल्कि इसके वैश्विक परिणाम भी हुए। विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)

The Iranian Revolution of 1979 not only transformed the regional dynamics but also had global ramifications. Discuss. (Answer in 150 words) 10

The Iranian Revolution of 1979 involved a popular uprising against the Rightist US supported Monarchy of the Shah of Persia mostly led by Communist leaning students and Islamic Fundamentalists.

It led to the setting up of the theocratic state of Iran with major power in the hands of Preachers.

Regional Ramifications of the Revolution

1) Heightened Shia-Sunni conflict in the MENA region.
2) Conflict reflected even in domestic politics of countries like Pakistan or even India.
3) Set up Iran-Iraq conflict which has even led to wars.
4) Middle East conflict between Saudi faction and Iran faction

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5) Proxies of the Shia Iran in Hezbollah (Lebanon) or Yemen intensified civil wars

6) Growing Israel Iran conflict as Iran supports Hamas and Hezbollah ; Israel attempts to prevent nuclear Iran.

Global Ramifications

1) USA-Iran rivalry leads to demands for isolation of Iran. For eg. India's issues with waivers from US Sanctions related to Chabahar Port.

2) Success of revolution inspired Islamic Fundamentalists right from Taliban to ISIS to form their own state.

3) Iran's dominant position in Strait of Hormuz a factor in oil and supply and shipping control.

4) Threat from nuclear Iran led to global US led efforts in form of Iran Nuclear Deal involving P-5 (Permanent UNSC members) nations in diplomacy with Iran.

Thus, we see the great impact this historic revolution had on world affairs.

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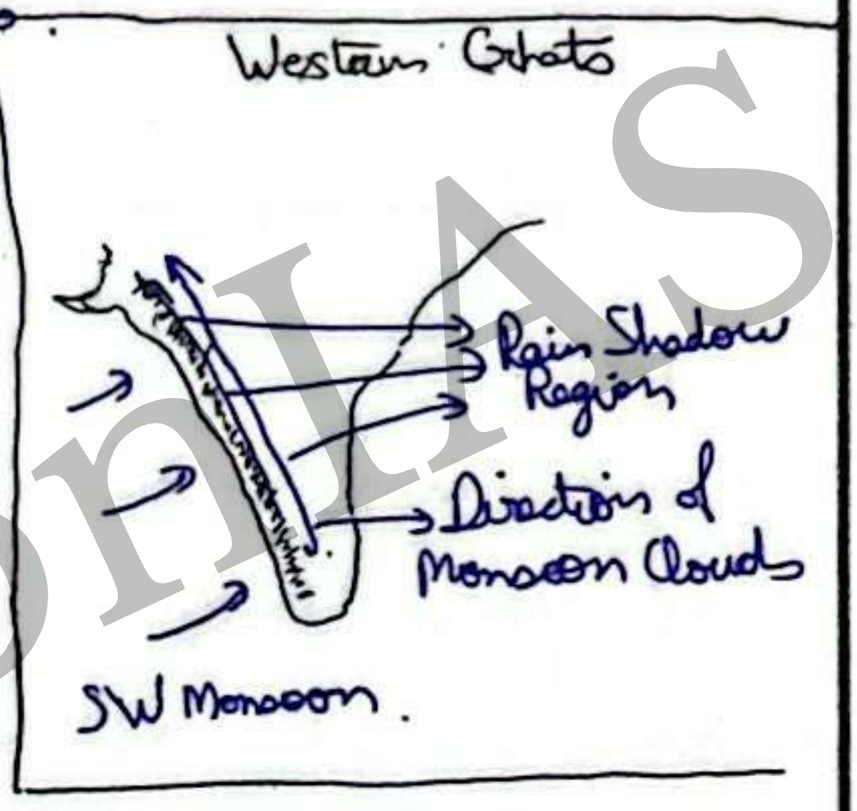
Q5. पश्चिमी घाट भारत के दक्षिण-पश्चिमी तटीय क्षेत्रों में दक्षिण-पश्चिमी मानसून को किस प्रकार प्रभावित करता है? (उत्तर 150 शब्दों में दीजिए)

How do the Western Ghats influence South-West monsoon in India's South-West coastal regions? (Answer in 150 words) 10

The Western Ghats are relatively steep, narrow mountain ranges parallel to the Indian Coast of the Arabian Sea broken only by a few passes.

They range from Gujarat to Maharashtra, Goa, Karnataka and Kerala.

They are very close to the Coast as it is an emergent coast.



Impact on South West Monsoons

1) The SW monsoon comes over Arabian Sea and obtains moisture from ocean.

2) The Western Ghats are tall and unbroken so monsoon winds break into 2 branches Arabian Branch and Bay of Bengal Branch

3) The Arabian Branch on windward slope of ghats causes more than 200 cm of

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rainfall resulting in Tropical Wet Climate and rainforests. Eg. Mumbai, Goa, Kerala.

4) The leeward or rain shadow side like Vidarbha region is semi arid as little rainfall occurs due to clouds losing all moisture earlier.

5) The Coastal Region experiences heavy rainfall during monsoon season as the Ghats stops clouds from moving in S-W direction and forces them to move Northwards parellel to the coastline and mountain ranges.

6) Very few passes or river mouths are present unlike Eastern Ghats so clouds cannot enter deeper using these routes.

Thus, the dimensions of the Ghats Topology has a profound impact on the nature of climate and consequently vegetations and animal life found in the Coastal Region of Western India.

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Q6. प्लेट विवर्तनिकी का सिद्धांत प्राकृतिक आपदाओं से संबद्ध कई भूवैज्ञानिक प्रक्रियाओं की व्याख्या करता है। विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)

The theory of plate tectonics explains many geological processes that are linked to natural hazards. Discuss. (Answer in 150 words) 10

The theory of Plate Tectonics posits the existence of many plates forming the Lithosphere which float on Liquid Magma at Mantle whose movement causes the plates to interact with each other by either Converging ; Diverging or Transform Boundaries.

Explanation offered by Plate Tectonics for various Natural Hazards

Earthquakes : a) Occur as a result of violent Plate Movement.

b) Usually a result of interaction between Plate at boundaries.

c) Plates move due to forces exerted by Magma and when they meet resistance pressure builds up and is suddenly released as resistance breaks.

Can explains Himalayan Earthquakes, Earthquake Prone Nature of Japan etc.

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Tsunamis: a) Occur when epicentre and focus is deep inside the ocean of an earthquake.

b) Occurs when Oceanic Plates interact with different plates.

Explains the Fukushima Tsunami or the 2004 tsunami

VOLCANOES: a) Mountains occur as a result of Plate Convergence and sometimes the subducted plate gets transformed into Fold Mountains for eg Himalayas, Andes

b) Some mountains still have magma actions (Mantle Plume) underneath which can escape to surface in form of lava flow.

Eg. Mt Kilimanjaro, Mt. Etna etc.

SECOND ORDER IMPACTS: a) Hazards like Volcanoes, Tsunamis cause fires; house debris; liquefaction; smoke of volcanoes which are also natural hazards to be countered.

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Q7. भारत में ज्वारीय ऊर्जा की क्षमता का परीक्षण कीजिए तथा इसके दोहन में आने वाली बाधाओं को स्पष्ट कीजिए। (उत्तर 150 शब्दों में दीजिए)

Examine the potential of tidal energy in India and explain the obstacles faced in harnessing it. (Answer in 150 words) 10

Tidal energy refers to a renewable source of energy created offshore by harnessing the movement of water due to tides.

Potential of Tidal Energy in India

1) With a 7500 km long coastline, 2 island groups India has vast potential to harness tidal energy.

2) Tidal energy could power vast demand generated by urban centres like Chennai or Mumbai both domestic and industrial

3) It is non polluting and not dependent on weather conditions unlike solar or wind so more reliable.

4) land acquisition or zoning issues unlikely.

5) Would also create jobs in manufacturing, research and development of tidal energy solutions.

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Obstacles faced in harnessing Tidal energy

1) Experimental technology with no standardized solution unlike solar or wind.

2) Cost of produced electricity higher currently than average other sources demand.

3) Maintenance and disaster proofing in case of storms or ~~tornad~~ cyclone an issue

4) Battery storage technology not developed enough

5) Obsolete grid technology not designed with periodic, non reliable renewable in mind.

6) Debt laden DISCOMs unwilling to fund long term Purchasing Price Contracts at a high enough level to interest private participations.

However, this technology could act as a valuable supplement to other renewable sources as India aims to achieve its INDC target of 50% Renewable Energy mix by ~~2022~~ 2030 under Paris Agreements.

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Q8. भारत में सामाजिक-सांस्कृतिक प्रथाओं पर वैश्वीकरण के प्रभाव की विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)

Discuss the impact of globalization on socio-cultural practices in India. (Answer in 150 words) 10

Globalisation refers to increasing inter connectedness of people, economies, cultures, and even nations. As such a revolutionary phenomenon it has had an impact on Socio-Cultural Practices in India.

Transformative Impact of Globalization

1) Families: a) Joint to Nuclear.

b) More load on parents whereas earlier it was shared by uncles, aunts, grandparents etc.

c) Fewer children.

d) Increased age of marriage – Between 2005-2020 increased by 2 years approximately for men and women.

2) Gender Roles: a) Less strict gendered division of labour in households.

b) More women working in families. Eg. Female Labour Force Participation Rate 2023 as per Economic Survey is 41%.

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3) Caste Roles: ii) Reduced impact of caste as a marker of work.

4) Culture: a) Global culture of food, movies, songs etc. becoming popular.

b) Even festivals like Halloween are now being celebrated in some pockets.

5) Export of Indian Culture:

a) Has also resulted in Indian culture becoming popular abroad. For eg. Oscar to RRR's Natu Natu Song.

b) Indian food like Chicken Tikka Masala considered as the national dish of United kingdom.

c) Initiatives like SPICMACAY showcasing best of Indian Song and Dance Traditions.

Thus, the impact of globalisation has been partly destructive, partly protective and partly transformational.

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Q9. भारत के शहरी गरीबी उन्मूलन उपायों को बाधित करने वाले मुद्दे क्या हैं? (उत्तर 150 शब्दों में दीजिए)

What are the issues that plague India's urban poverty alleviation measures? (Answer in 150 words) 10

India's Urban Population percentage currently as per UN HABITAT is 32% and estimated to reach 50% by 2050. This rapid growth in population however has not been matched by growth in income despite many measures taken by the Government.

Issues Plaguing India's Urban Poverty Alleviation Measures

1) Housing: a) Ministry of Housing and Urban Affairs estimates nearly 17% of Urban population lives in Slum Like Conditions.

b) PM AWAY Yojana Urban has alleviated by helping in home construction but implementation issues; greater demand than supply; lack of private builder sector buy in.

c) Slum redevelopment programmes like at Dharavi too are stuck.

d) Poor urban planning and unplanned growth exacerbates issues.

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2) Poverty : a) Lack of MGNREGA type employment guarantee program

b) 90% of employment in poorly paid, uncertain informal sector

c) No pension or post job benefits by informal employers.

d) Schemes like Atal Pension Yojana or National Urban Livelihoods Mission may help but need to reach critical mass

e) Issue in success - lack of awareness; lack of government documents etc.

3) Hunger : a) Schemes around National Food Security Act such as Fair Price Shops exist but suffer from migrant workers earlier unable to access at remote areas.

b) Leakage of food.

c) Quality of food

d) Nutrition profile mismatch.

Thus we can see that the well meaning poverty alleviation measures were only partly successful due to some structural defects. These need to be addressed in order to reduce India's Poverty intensity

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Q10. भारत में महिलाओं पर देखभाल संबंधी कार्य का असंगत बोझ उनकी निर्धनता में किस प्रकार योगदान देता है? (उत्तर 150 शब्दों में दीजिए)

How does the disproportionate burden of care work placed on women contribute to their impoverishment in India? (Answer in 150 words) 10

Studies indicate that on an average adult Indian women undertake up to 4.5 hrs of unpaid caremork daily whereas men only do it for 30 minutes

Impact of Disproportionate Burden of Care Work on Impoverishment of Women

1) Less time for women to learn new skills or work longer hours.

2) Gaps in resume when need arises like a few years post childbirth which reduces lifetime earning potential.

3) Linking of care work with gender leads to 'Pink Collarization' — Association of jobs like Nurses with women and as more women work in these unpaid sectors it impoverishes them.

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4) Undue burden leads to exhaustion and even health issues reducing performance at work affecting career.

5) Employer bias against hiring or promoting women due to worry about ability to work longer hours. For eg. recent news that FOXCONN India was not hiring married women as they did not want pregnant workers. This reduces wealth, opportunities etc.

6) Societal bias expects women to handle care work so schools, hospitals etc prefer to communicate with wives rather than husband thereby increasing burden.

7) Lack of mobility in terms of switching jobs and cities for women due to care work obligations reduces opportunities.

Thus, we can see that this unpaid burden is a heavy one that contributes to the gendered nature of poverty experienced by Indian Women.

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Q11. भारत की समन्वयकारी संस्कृति को आकार देने में सूफीवाद की भूमिका की व्याख्या कीजिए। (उत्तर 250 शब्दों में दीजिए)

Explain the role of Sufism in shaping the syncretic culture of India. (Answer in 250 words) 15

The Sufi tradition of Islam is a unique strand developed in Central Asia and Iran/Iraq focusing on mysticism; charismatic pirs; spiritual bond of personal communion etc. It heavily influenced India as powerful Sufi sects came alongwith advent of Islam in India such as Chisti or ~~Aulia~~ Nizamuddin Auliya

Role of Sufism in shaping Syncretic Culture of India

1) Sufi and Bhakti movements inspired each other. Many references, allusions and philosophical musings were common to both traditions. Most famously in Amir Khusro's devotional works addressed to Nizamuddin Auliya.

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2) Dargahs such as Ajmer Dargah became famous centre of learning, devotion, art which helped syncretise the local culture, traditions of indigenous origin into a broader Sufi Movement.

3) Sufis ~~rulers~~ and rulers had a prominent relationship and often helped influence their policies, even sometimes moderating their extremism or fanaticism.

4) Sufi ~~Art~~ Art such as Qawallis built on Indian Hindustani Classical tradition. Their dance forms too evolved and ~~comm~~ co-mingled eventually leading to such classical styles as Kathak patronized by Muslim Nawabs of Lucknow.

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5) Sufi Philosophy of wandering saints or Dervishes; Communion with God; Penance and Renunciation; a feeling of love and devotion towards God were very reminiscent of and likely inspired by Bhakti and Shramanic traditions in India.

Thus, we can see that the Sufi tradition played a unique role in Indian history and culture. Its synoretic roots are a direct legacy of Sufism among others.

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Q12. क्षेत्रीय विविधताओं के बावजूद, भारत में विभिन्न लोक संगीत और नृत्य रूपों को परस्पर जोड़ने वाले कुछ समन्वयकारी विषय विद्यमान हैं। विवेचना कीजिए। (उत्तर 250 शब्दों में दीजिए)

Despite the regional variations, there remain some unifying themes that bind the different folk music and dance forms in India. Discuss. (Answer in 250 words) 15

India's folk music and dance forms are incredibly diverse reflecting the country's geographical, linguistic, and cultural variety.

Unifying Themes Binding Different Folk Music and Dance Forms

1) Connections to Nature and Agrarian Life:

a) Deeply rooted in nature, like rhythms of season and the sowing seasons of crops.

b) Often celebrate harvests, monsoons etc.

Eg. Bihu (Assam) and Lavani (Maharashtra) dance forms to celebrate the harvest season and include elements of nature.

2) Expression of Religion and Worship:

a) Tradition intertwined with spirituality

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devotion and local deities

b) Offers performed as part of worship rituals and as celebrations of gods and goddesses.

Eg. ~~Baul Songs (Bengal)~~ Dandiya and Garba during Navratri.

3) Storytelling : a) Many songs and dances have element of storytelling.

b) Stories sometimes have a common source such as Ramayana series

Eg. Ram Navami (North India) and Theatre forms of Kerala both play out Ramayana Series.

4) Community Bonding : a) Communal participation core part of rituals.

b) Performances are communal activities like dances or singing.

Eg. Giddha/Garbha and Dandiya dances are ~~was~~ communal dances.

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Celebration of life Events:

a) Centered around life events like births, wedding etc.

Eg. Jhumar or ~~Giddha~~ Giddha performed (Haryana) (Punjab) during weddings.

Thus, we see unifying themes of spirituality, community, nature and storytelling. These art forms collectively express the cultural richness of India transcending regional boundaries and reinforcing a shared heritage.

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Q13. स्थायी बंदोबस्त से उत्पन्न निराशा और उससे प्राप्त सबक ने ब्रिटिश भारत में वैकल्पिक भूमि राजस्व प्रणालियों के विकास को किस प्रकार बढ़ावा दिया? (उत्तर 250 शब्दों में दीजिए)

How did the disillusionment and lessons from the Permanent Settlement lead to the development of alternative land revenue systems in British India? (Answer in 250 words) 15

The permanent settlement land revenue system was the method adopted under Lord Cornwallis, Governor of Bengal where the settlement rate was permanently fixed for a tract of land with the hope that the landed gentry would undertake innovations and improvements as any surplus would be pure profit. It was inspired by UK's taxation system.

Learnings from Permanent Settlement

1) Initial rate very high causing massive defaults.
2) Sunset Clause forced distress sale of many lands and estates but collusion often occured where same owners re-acquired estates.
3) Intensive commercialisation of agricultural land with many intermediaries and

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Sub intermediaries between the Company and the tillers.

4) Massive impoverishment of tillers.

5) Fall in agricultural productivity and occurence of famines.

6) Led to revolts such as Sanyasi Rebellion.

Alternative Land Revenue System: RYOTWARI SYSTEM

1) Championed by Thomas Munro in Southern holdings of the Company especially in Madras Province.

2) Ryots or farmer considered to be in direct contact with the State, no intermediaries or landlords.

3) Revenue based tax system, based on the calculated land fertility and crop yield.

4) In practice the lack of proper data and land survey measurements

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meant tcoc calculated was arbitrary and exploitative.

Alternative Land Revenue System: MAHALWARI SYSTEM

1) Mainly adopted in Punjab Province and adjoining regions of Central and Upper Provinces.
2) The village was taken as a unit or 'Mahal' and tax was levied on village as a whole unit.
3) Reduced administrative burden of dealing with all the ryots ~~tax~~ or calculating their land holdings.
4) More in line with traditional practices followed in India earlier.
5) British retained right to assess and levy tax at own rates.

Thus we see that the Company found it hard to devise a revenue model that was remunerative to them while also economically productive. As a result they impoverished the peasantry over their rule.

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Q14. उत्तरी और पश्चिमी भारत में डेयरी उद्योग के स्थानीयकरण में योगदान देने वाले प्रमुख कारकों पर चर्चा कीजिए। डेयरी क्षेत्रक इस क्षेत्र के आर्थिक विकास को किस प्रकार प्रभावित करता है? (उत्तर 250 शब्दों में दीजिए)

Discuss the key factors that contribute to the localization of dairy industry in the Northern and Western India. How does the dairy sector impact the region's economic development? (Answer in 250 words) 15

The dairy industry of India is extremely important as India is world's largest producer of dairy products. It is primarily concentrated in Northern India (Punjab and Haryana) and Western India (Gujarat and Maharashtra)

Key Factors behind localisation of Dairy Industry

1) Input / Raw materials factor :

a) Regions contain vast amounts of milch livestock providing raw materials.

b) Availability of infrastructure in rural areas like electricity, roads and other input factors.

2) Large Domestic Market :

a) Cultural factors promoting consumption

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of dairy products mean there is ready demand.

3) Supportive Government Policy:

a) Agriculture Extension Services to spread awareness about cow breeds; technology like Artificial Insemination to increase livestock quality

b) Research and Development via institutions like Punjab Agricultural University

4) Cooperatives:

a) Success of dairy cooperatives of Amul and Verka who set up organisational structure, infrastructure like pasteurization plant; bottling plant; and so on.

5) Big Urban centres of Delhi, Mumbai, Ahmedabad and connectivity via road and rail to rest of India.

Impact of Dairy Sector on Regional Economic Development

1) Livestock breeding helped diversify income sources for farmers.

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2) Insurance against poor harvests.

3) Allowed for greater women economic participation especially via Amul and Verka's cooperative model.

4) Dairy processing activities like Amul Butter; Verka flavoured milk provides value addition and more remuneration.

5) Availability of nutritious milk leads to healthier children as seen in relatively lower rate of Child Stunting in these states.

6) Employment opportunities in dairy processing

7) Government policy at State level too is focused on rural sector with central support via White Revolution.

Thus, we can see that the White Revolution has achieved success in North and Western Part of India.

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Q15. पूर्वी एशिया के सेमीकंडक्टर विनिर्माण के प्रमुख केंद्र के रूप में उभरने में किन कारकों ने योगदान दिया है? (उत्तर 250 शब्दों में दें)

What factors have contributed to the emergence of East Asia as a major hub for semiconductor manufacturing? (Answer in 250 words) 15

Semiconductors are technology where miniature circuits are drawn on wafers made of semi conducting materials like Silicon Chips thereby enabling electronics to be done at scale due to their small size.

Features of Semiconductor Manufacturing:

1) Incredibly technologically advanced sector with very few countries like Taiwan, USA able to do manufacturing at smallest dimension of 70 or so nanometre thickness.

2) The manufacturing supply chain is very widespread with different nations specializing in different aspects. For eg. USA in Chip Design; India in Chips Simulation and Testing on Software (Fabrication); Taiwan on actual manufacturing

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Amsterdam is manufacturing heavy machinery i.e. lenses which do the chip embedding.

Factors contributing to Convergence of Semi Conductor Manufacturing in East Asia

1) Advanced institutes of material engineering at these nations.

2) Advanced enough to do work; Cheaper than the West made it feasible for ~~nations~~ companies like AMD or Intel to outsource manufacturing to likes of TSMC.

3) Poaching of exceptional scientists by China and South Korea and Taiwan back from USA to work on this.

4) Geopolitical situation where US allied Japan, Taiwan and S. korea were considered safe and reliable partners.

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5) The headstart they have deters any competitors globally.

6) Culture of constant innovation as they challenge the limits of Moore's law (Doubling of Computational Power every 7 years)

7) Already integrated into global supply chains.

India too is attempting to enter this lucrative and strategic segment by luring MNC's to do chip manufacturing in India. Recent PLI based initiatives alongwith attractive tax and land related concessions to companies like FOXCONN are a step in the right direction. But the dominance of East Asia will be hard to shake off in this crucial sector.

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Q16. भारत भौमजल के क्षरण के चरम बिंदु की ओर क्यों बढ़ रहा है? भौमजल पुनर्बहाली के लिए क्या रणनीति अपनाई जा सकती है? (उत्तर 250 शब्दों में दीजिए)

Why is India heading towards groundwater depletion tipping point? What strategies can be adopted for groundwater restoration? (Answer in 250 words) 15

Globally India uses the most groundwater in the world which gives that its only has ~5% of available freshwater while supporting ~18% of world's population means India is heading to a situation of irreversible Groundwater decline — Tipping Point — unless mitigation strategies are taken.

Reasons India is heading towards Tipping Point

1) Excessive forms of groundwater irrigation over canal or other sources especially in Punjab and Haryana.

2) MSP policies and assured procurement incentivise farmers to plant water guzzling crops like Sugarcane or Rice which together account for 60%.

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of total water use.

3) Reliance of industries and agriculture on groundwater as other source like rivers or lakes are lidly polluted

4) Lack of rainwater harvesting, tank system etc means groundwater recharge does not happen.

5) Schemes like free electricity encourages farmers to use wasteful irrigation like Flood irrigation from borewells.

6) Growing urbanisation and poor municipal water supply means urban areas are overly reliant on groundwater pumps.

7) High Yielding Varieties of Seeds require more water.

8) Push for ethanol is also water intensive. Approximately 3000 L of water consumed for 1 liter of bio ethanol.

Strategies to be adopted for Groundwater Restoration

1) Recharge :

a) Like in Chennai,

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mandatory groundwater recharge in form of rainwater harvesting in any new construction.

b) Include tank bunds and other storage infra in MNREGA projects

2) Sustainable Agriculture : a) Growing climate appropriate crops like not rice in Punjab but Millets.

b) Reforming MSP to nudge farmers away from rice and sugarcane.

c) As part of Krishi Sinchayee Yojana provide for more and more micro irrigation techniques like Drip irrigation

3) Reforming municipal water supply by plugging leakages and stopping stealing

4) Making people aware of crisis and encouraging lifestyle changes as envisaged in LIFE Campaign.

Thus, we can see this ticking water time bomb in our near future waiting for any meaningful actions.

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Q17. जलवायु परिवर्तन, भौतिक परिवर्तनों और जैव विविधता के संदर्भ में, हिमालय को किस प्रकार प्रभावित कर रहा है? (उत्तर 250 शब्दों में दीजिए)

How is climate change affecting the Himalayas in terms of physiological changes and biodiversity? (Answer in 250 words) 15

Climate Change refers to changes in climate due to anthropogenic activities causing increasing concentration of greenhouse gases like Methane or Carbon Dioxide in atmosphere which is leading to Global Warming.

Effect of Climate Change on Himalayan Physiology

1) Himalayas considered 3rd Pole of world due to vast amounts of stored freshwater in form of glaciers.
2) Increasing temperatures is reducing glacier levels by melting.
3) Increase in average altitude at which Tree Line is formed
4) Increasing extreme weather

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events like Flash Floods for eg. recent floods in Sikkim Himalayas which caused damage to Teesta Dams and Hydropower Project.

5) Increasing rainfall also causes landslides as soil binding fails.

6) Increasing intensity of riverflow due to greater meltwater causing more erosional actions.

Climate Change Effect on Biodiversity

1) Harmful effects of greater temperature changes affecting wildlife and biodiversity

2) Human agricultural activities also affected – For eg. Apple Orchards shifting to higher altitudes.

3) Human activities causing damage to forests and causing risk of extinction to animals like Snow Leopards.

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4) Harmful effects on Pollination due to decline of number of bees, butterflies and other insects.

5) Damage due to floods, landslide

6) Forest fire incidents increased due to unseasonably warm and dry summers. For eg Recent Uttarakhand forest fire.

7) Reduced snowfall in winters. For eg. First No Snow winter in Gulmarg

8) Transhumance activities by tribes like Gujjars in Jammu and Kashmir affected as they have to climb higher to access meadows.

Thus, there is a growing risk to Himalayas and the life they support if humanity is unable to achieve the Paris Climate Agenda and limit the global average temperature increase to 1.5°C above pre industrial levels.

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Q18. पारंपरिक संयुक्त परिवारों और एकल परिवारों में बच्चों के पालन-पोषण के तरीकों में अंतर बच्चों में आत्म-पहचान और समाजीकरण के निर्माण को कैसे प्रभावित करता है? (उत्तर 250 शब्दों में दीजिए)

How do the differences in child-rearing practices in traditional joint families and nuclear families influence the formation of self-identity and socialization in children? (Answer in 250 words) 15

Child rearing is largely affected by Socialisation at home and this impact is different comparatively when the family is a joint or a nuclear one.

Different Influences caused by Traditional Joint Families versus Nuclear Families and it Impact

Traditional Joint Families	Nuclear Families
Usually Patriarchal with Hierarchy based on Age and Gender.	- less patriarchal - Less Hierarchical - More gender equitable
o Large in number with multiple generations cohabiting same residence.	Small, usually only 2 generations living. Extended family still plays important role in decision making, functions and support

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• Child rearing happens with interactions with grandparents and exposure to own culture, myths, language and tradition.	• Children go to Day Care, Preschool; exposed to internet and mobiles so learn english, western culture etc.
• Mothers usually stay at home while father work so children closer to mother.	Both parents spend time so children equally comfortable with both.

The impact of these different child rearing practices are:

1) Children now more lekely to be a speaking English and less likely to speak mother tongues.

2) Children less exposed to own culture, stories, moral values etc.

3) Earlier children were more social due to presence of same age cousins at home.

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4) Nowadays children more addicted to mobile phones and digital devices at younger age as parents seek to distract children by exposing them to phones.

5) These children have shorter attention spans and less imagination in play.

6) ~~Kide~~ Children nowadays less likely to have unstructured play time so less able to cope with boredom and take self initiative.

Thus, we can see that the impact of loss of joint families has been harmful to children. Thus, there is a trend nowadays of nuclear families converting into joint families as children are born and grandparents move in with the parents.

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Q19. क्या जाति और लिंग अंतर्संबंधित हैं और ग्रामीण भारत में महिलाओं के लिए विशिष्ट सामाजिक-आर्थिक सुभेद्यताएं उत्पन्न करते हैं? अपने उत्तर का औचित्य सिद्ध कीजिए। (उत्तर 250 शब्दों में दीजिए)

Do caste and gender intersect and create unique socio-economic vulnerabilities for women in rural India? Justify your answer. (Answer in 250 words) 15

Caste and Gender intersect in a perverse way in rural India creating unique socio-economic challenges.

Unique Socio Economic Vulnerabilities for Lower Caste Rural Women

1) Compared to Lower Caste Men:

a) Suffer from casteism and patriarchy.

b) Denied opportunities in education on basis of Caste and Gender.

c) Potential victims of Sexual Exploitation on basis of Caste heirarchy as well

d) Have dual burden of work and household activities.

2) Compared to Upper Caste Rural Women:

a) Suffer in patriarchal structure but also against Caste Discrimination.

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b) Lower Caste Women have worse Socio Economic Indicators than Upper Caste Women in almost all metrics of Health, Education, Qualification etc as per NFHS-5 data.

c) Usually limited employment opportunities and strongly segregated on caste basis of traditional occupation.

Unique Socio Economic Vulnerabilities for Upper Caste Rural Women

Compared to Lower Caste Women:

a) More likely to be benificiaries of government schemes as they have more awareness and access to formal documents like land pattas for accessing PM-AASHA payouts [Not available to predominantly lower caste Sharecroppers]

b) More likely to access government scholarships for women due to greater privileges of caste.

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d) Suffer from threat of honour killings in Inter Caste Marriages if they marry 'below their Caste'.

2) Compared to Upper Caste Rural Men :

a) Less resources of land, assets available.

b) Less education and skills.

c) Less socially and financially empowered.

d) Constrained by patriarchal structure to a domestic and gendered role.

e) Men more likely to migrate for employment while women much more likely to migrate for marriage.

Thus, we can see the unique intersection of Caste and Gender in Rural India highlighting the unique vulnerabilities it creates and showcasing the difficulties in solving these varying issues in a straight forward way.

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Q20. क्या सामाजिक-आर्थिक वंचना लोगों को हिंसा का शिकार होने या स्वयं हिंसा में शामिल होने के प्रति अधिक संवेदनशील बनाती है? (उत्तर 250 शब्दों में दीजिए)

Does socio-economic deprivation make people more susceptible to either being victims of violence or engaging in violence themselves? (Answer in 250 words)15

The reasons behind violence are multifacted and complex ~~and~~ but 2 of the most popular causal factors proposed are that poverty and deprivation either create abusers or victims.

Reasons for Deprivation being likely to create Victims of Violence

1) NCRB data shows that vast majority of victims of violence are below the poverty line

2) These people lack resources in terms of social influence, financial resources etc. to deter would be abusers as they cannot credibly threaten to go to the police or seek legal recourse,

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3) More likely to be residing in violence prone areas like slums in Urban cities.

4) More likely to be involved in illegal or grey area activities due to lack of alternative safe formal employment

5) More likely to be in abusive financial ~~area~~ arrangements like indebted to moneylenders with risk of violence.

6) Less likely to have support systems so will have to stay in abusive situations like Domestic Violence.

Reasons for Deprivations being likely to Create Abusers

1) Less to lose in an economic or social sense so lower deterrence.

2) More likely to resort to violence to gain access to money, objects as have no other means of getting it.

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3) More often find themselves in situations where they can be recruited into crime syndicates or gangs.

4) Less likely to get therapy or treatment for mental health issues so may lash out in violent ways.

5) Lack awareness about morality, ethical norms and empathy and compassion via education system.

Ultimately, socio economic deprivations are likely to create a vicious cycle of abused later on becoming the abuser creating a new pool of potential abusers.

We need to solve the root problem of ensuring all get access to a life full of equity, equality, justice and freedom from want to break this vicious cycle.

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GENERAL STUDIES (TEST CODE : 2843)

Name of Candidate	NIHAL RANDHAWA		
Medium Eng./Hindi	English	Registration Number	58123
Center		Date	1st Aug 2024

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
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16	15	
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20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **HINDI & ENGLISH.**
   इसमें बीस प्रश्न हैं हिन्दी और अंग्रेजी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

Is student recommended for One-to-One mentoring?

Recommended	Strongly Recommended

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EVALUATION INDICATORS

1. **Contextual Competence**
2. **Content Competence**
3. **Language Competence**
4. **Introduction Competence**
5. **Structure - Presentation Competence**
6. **Conclusion Competence**

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

Visionias

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1. अल नीनो-दक्षिणी दोलन (ENSO) की परिघटना की व्याख्या कीजिए। विशेष रूप से भारत का संदर्भ देते हुए, वैश्विक जलवायु पर इसके प्रभावों की विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)

Explain the phenomenon of El Nino-Southern Oscillation (ENSO). Discuss its effects on the global climate, with specific reference to India. (Answer in 150 words) 10

El Nino Southern Oscillation is a periodic climate phenomenon, recurring every 3-5 years, whereat different times periods cold or warm weather conditions occur off the coast of Central America and South America

El Nino and LA Nina

El Nino	La Nina
GLOBAL CLIMATE EFFECTS	
1) Warmer than average climate off the coast of Peru, Chile etc.	Colder than average climate off the coasts
2) Weaker trade winds	Strong trade winds
3) Higher rainfall in South American pacific coastline but weak rainfall in Australia Eastern Coast.	Lower rainfall in South American coast but higher rainfall in Australia and South East Asia.
4) Leads to ~~week~~ weak monsoon.	Leads to strong monsoons.

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ENSO Impact on Indian Climate

1) El Nino leads to weak Indian monsoons and La Nina leads to strong summer monsoons.

2) Due to weak trade winds of El Nino the North West Monsoons are weakened and leads to lower rainfall in Winter Monsoons of Tamil Nadu.

3) Due to Strong Trade Winds of La Nina the North West Monsoon is strengthened and high rainfall occurs in Winter in Tamil Nadu.

4) Weak monsoons lead to drought like conditions

5) La Nina leads to colder than usual winters in North India.

6) El Niño leads to mild winters.

Thus, ENSO is an important global phenomenon which influences global climate patterns.

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2. कायांतरण को प्रभावित करने वाले विभिन्न कारकों का वर्णन करते हुए कायांतरित शैल के महत्व पर प्रकाश डालिए। (उत्तर 150 शब्दों में दें)

Describing the different factors that influence metamorphism, highlight the significance of metamorphic rocks. (Answer in 150 words) 10

Metamorphism is the process by which rocks are transformed by application of external factors like pressure, heat, chemical reactions etc. These new rocks are called Metamorphic Rocks for eg. Gneiss; Schist; Graphite etc.

Factors influencing Metamorphic Rock Formation

1) Pressure: Pressure inside Earth's crust causes metamorphism.

2) Heat: Extreme Heat from inside the Earth's surface due to molten magma.

3) Chemical Reactions: Rocks change form due to chemical reactions by interaction with chemically active substances like rainwater.

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Significance of Metamorphic Rocks

1) Geological Significance - Used to figure out the geological history of a place

2) Tectonic Significance - Presence of metamorphic rocks help geologists figure out plate tectonic movements

3) Mineral / Resource Significance - Metamorphic rocks are ~~valu~~ valuable resources for industrial use. For eg- Graphite, Slate etc

4) Construction Use - Marble, Slate etc.

5) Industrial Use - Graphite as a conductor; moderators in nuclear power plants.

Thus, metamorphic rocks are significant from a natural as well as human perspective.

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3. तड़ित झंझा क्या है और इसकी उत्पत्ति किस प्रकार होती है? तड़ित झंझा के जीवनचक्र के विभिन्न चरणों का विवरण दीजिए। (उत्तर 150 शब्दों में दीजिए)

What is a thunderstorm and how is it formed? Give an account of the different stages in the lifecycle of a thunderstorm. (Answer in 150 words) 10

A thunderstorm is a weather phenomenon of intense rainfall accompanied by thunder and lightning. It usually occurs in summer months.

Formation of Thunderstorm

1) Conditions are of high temperature; humidity; low pressure leading to evaporation from surface and updraft of water vapour laden air.

2) As this cumulus cloud rises the temperature falls and and ice formation occurs.

3) The heavy air thus proceeds to descend in a downdraft and friction between ice particles causes electrical charges to form leading to lightning and thunder

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4) The charged clouds also charge the surface leading to cloud to surface lightning as well.
5) The accumulated water falls in form of rainfall.

Stages in Life Cycle of Thunderstorm

Initial Phase: High temperature leads to low pressure and rising winds.

Mature Phase: Rainfall, thunder and lightning take place.

End Phase: As the rainfall occurs there is also downdraft of wind to the surface. This reduces the temperature and increases the pressure (atmospheric).

Thus the condition for thunderstorm formation are not present and the thunderstorm ceases

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4. भारत को बांस-आधारित उद्योगों के विकास हेतु उपयुक्त बनाने वाले कारक कौन-से हैं? (उत्तर 150 शब्दों में दें)

What are the factors that make India suitable for the development of bamboo-based industries? (Answer in 150 words) 10

Bamboo based industries are very prominent in the Indian economy as India is the 2nd largest manufacturer of Bamboo based products globally after China.

Important locations of this industry:
a) Madhya Pradesh – Largest state
b) Bengal and North East.

Factors that make India suitable for Bamboo Based Industries

1) Historical : Long legacy of crafts and goods made of bamboo. For eg. Bamboo Stilt houses in Assam.

2) Geographical : Bamboo can grow well in Alluvial Soil ; High Temperature High Humidity regions like West Bengal or North East India.

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3) Labour : Presence of many skilled artisans, craftsmen who develop bamboo based goods for sale.

4) Low Capital Cost to set up the plantation.

5) Short Gestation Period before bamboo saplings can be commercially exploited.

6) Not a very specialised setup in terms of irrigation requirements etc

7) Great domestic market demand for bamboo based products

8) Regulatory support from the government as seen in recent change in Indian Forest Act classifying Bamboo as Grass thereby making it easier to commercially develop.

Thus, India needs to explore the potential of this growing wonder grass by focusing on Bamboo Cultivation; Manufacturing and Export.

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5. भारत में भूतापीय ऊर्जा के लिए संभावित स्थलों का उल्लेख कीजिए। भारत अभी भी भू-तापीय ऊर्जा का उपयोग करने के शुरुआती चरण में क्यों है? (उत्तर 150 शब्दों में दें)

State the potential sites for geothermal energy in India. Why is India still at a nascent stage of utilization of geothermal energy? (Answer in 150 words) 10

Geothermal energy is renewable energy source where heat from inside Earth's surface is released in the form of hot water springs; steam/vapour; heated rocks at the surface.

Potential Geothermal Sites in India:

a) Ladakh : Puga site

b) Himachal Pradesh : Manikaran

c) Uttarakhand : Hot water springs

d) Gujarat Maharashtra : Cambay Basin

Challenges for Geothermal Energy India

1) Competition with other renewable sources such as Solar or Wind Energy where greater government and private investment has taken place.

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2) Geothermal energy is 3-4 times more expensive in Capital Investment terms than other comparable Renewable Energy Sources

3) latest technology required for drilling in order to exploit geothermal energy.

4) Remote location and In Situ Generation requirements are another challenge both in ~~setup~~ set up terms maintenance and operational terms as well as energy transmission related losses.

5) Many hot water springs have great religious or cultural significance. For eg. Manikaran Gurudwara in Himachal Pradesh which makes it challenging to set up a power generation factory on site.

However, the government is cognisant of the potential benefits of geothermal energy and has signed an MoU with Iceland to develop Puga, Ladakh in 2021 as well as set an aim for overall 10GW energy generation

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6. भूमि-उपयोग परिवर्तनों के कारण भारत में प्राकृतिक आपदाओं की घटनाएं बढ़ी हैं। कैसे? (उत्तर 150 शब्दों में दीजिए)

Land-use changes are leading to increased occurrences of natural disasters in India. How? (Answer in 150 words) 10

Land Use changes refers to human activities changing the usage pattern of a particular area, usually from Forest or Agricultural to Commercial or Residential.

Land Use Change Pattern in India

1) Increasing Urbanisation over decades leads to conversion of Agricultural land to either Residential land or Commercial land / Industrial Land.

For eg. Amravati in Andhra Pradesh where prime agricultural land is converted to create a new capital city.

2) Growing population pressure leads to conversion of Reserved Forests into Agricultural Land.

3) Wrong farming practices lead to increasing desertification. Eg. Edges of the Thar desert in Rajasthan, Haryana and Punjab.

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Land Use Changes and Natural Disasters

1) Droughts: a) Loss of vegetation leads to reduced transpiration and lower rainfall.

b) Concretisation leads to run off of rainwater instead of replenishment of ground water table.

2) Floods: a) Loss of urban wetlands by conversion into built up area leads to urban flooding. For eg. Bangalore where lakes are encroached.

b) ~~Rere~~ Seasonal streams are blocked leading to floods.

3) Heat ~~W~~ Waves: Urban heat islands exacerbate hot conditions to dangerous levels.

4) Cold Waves: Urban concretisation and building materials trap cold air during cold waves.

Thus, we can see that unscientific and unscrupulous impact of land use change is felt deeply when natural disasters strike.

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7. भारत आपदा नियोजन, शमन और प्रतिक्रिया संबंधी अपनी कार्यविधि को बेहतर बनाने के लिए भौगोलिक सूचना प्रणाली (GIS) की क्षमताओं का उपयोग किस प्रकार कर सकता है? (उत्तर 150 शब्दों में दीजिए)

How can India harness the capabilities of Geographic Information Systems (GIS) to enhance its approach to disaster planning, mitigation, and response? (Answer in 150 words) 10

Geographic Information Systems (GIS) refers to the use of Information and Technology tool in the geographic domain to create a spatial map of an area highlighting all relevant aspects of the geography, weather, ~~urban~~ human settlements etc.

GIS Use in Disaster Planning

1) GIS can act as a tool to aid in planning. For eg. Identification of Seismic Active Zones and classifying into 5 based on risk.

2) GIS can act in micro planning and create street level risk assessment strategies. For eg- In cities specific localities can be identified which are lower lying and risk flooding.

3) Can be used to map safe shelters, hospitals, fire station etc. and ~~ma~~ incorporate them in GIS maps.

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GIS Use in Disaster Response and Mitigation

1) Weather monitoring can predict certain events like Cyclones or Rain Storms upto a few days in advance.

2) GIS tools can help direct first responders to known human habitats in event of destruction due to earthquake or landslides by keeping satellite photos mapped to lat/long.

3) Satellites imagery can also direct real time rescue operations.

4) After disaster GIS satellites can assess impact and aid can be distributed accordingly.

5) learning scientifically from one event can lead to guidelines being applied elsewhere.

Seeing the benefit of GIS tool the Indian Government has made them a mainstay of our disaster response toolkit

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8. पर्यावरण संरक्षण एवं जैव-विविधता पुनर्बहाली के संदर्भ में, 'रिवाइल्डिंग' की अवधारणा को स्पष्ट कीजिए। रिवाइल्डिंग पहलों का मार्गदर्शन करने वाले सिद्धांत क्या होने चाहिए? (उत्तर 150 शब्दों में दें)

In the context of environmental conservation and biodiversity restoration, state the concept of 'rewilding.' What should be the principles guiding the rewilding initiatives? (Answer in 150 words) 10

Rewilding is an Environment Conservation technique which refers to restoring ecosystems damaged by human activities by allowing wildlife and natural processes to reclaim those areas.

Principles of Rewilding

1) Focus on 3 C's – Core, ~~Conservation~~ Corridor and Carnivore.

2) The Core area should be free of human interference.

3) There should be Corridors between Core Areas so that wildlife can safely transition in order to avoid overpopulation pressures. For eg. Overpopulation of Lions in Gir National Park, Gujarat leads to human-lion conflict.

4) Carnivores are main focus as being keystone

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species the entire Food Web depends on presence of Apex Predators. For eg. Re-introduction of Cheetahs in Kuno National Park, Madhya Pradesh may lead to Rewilding of entire area.

5) Focus on entire ecological benefit and not narrow human benefits only.

6) Human interventions and designs to be minimized, focus on letting nature adjust dynamically and settles in an equilibrium.

Thus, Rewilding is a unique approach to conservation where nature is allowed to heal itself without human interference and minimum human intervention.

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9. पिछले कुछ वर्षों से भारत के विभिन्न हिस्सों में प्रकाश प्रदूषण में निरंतर वृद्धि क्यों हो रही है? जैविक जीवों पर इसका क्या प्रभाव पड़ता है? (उत्तर 150 शब्दों में दें)

Why has light pollution been on a steady rise in various parts of India for the past few years? What are its implications on biological organisms? (Answer in 150 words) 10

Light Pollution refers to harmful, excessive light generated by man-made activities during the night time.

Rise in Indian Context

1) Increasing Urbanisation (28.5% in 2001 census and now estimated to be 34%)

2) ~~Cons~~ Economic growth and increasing industrialisation, factories, offices etc.

3) Growing consumption culture and affluence with increase in vehicle ownership.

4) Greater supply of electricity in nightime to rural/remote areas overtime.

5) Affordable light sources such as LED bulbs and growing street lightification

Implications on Plantlife

1) Pollination cycle is disturbed for certain nightime species of butterflies and other

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pollinators.

2) Photosynthesis and respiratory cycle is affected as nightlights mess with biological instincts

3) Deciduous plants shedding cycle governed by length of day is affected.

Implications on Animals

1) 1) Cicardian rhythm of all animal, including humans is affected leading to lifestyle disorders and diseases.

2) Migratory species use moonlight for navigation and their ability to do so is disrupted.

3) Hibernation cycle disrupted as governed by decreasing length of day to indicate winters onset.

4) Moths and other insects die out as they get attracted to manmade light.

Seeing the dangerous implications of light pollution there needs to be a scientific design of new light sources such that they only point downwards; focused beams are used; smart lighting solutions can be mandated

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10. आक्रामक विदेशी प्रजातियों की आबादी में वृद्धि और उनके प्रसार के लिए कौन-से कारण उत्तरदायी हैं? ये भारत जैसे देश के लिए किस प्रकार विशेष रूप से हानिकारक हैं? (उत्तर 150 शब्दों में दें)

What are the reasons behind the increasing growth and spread of invasive alien species? How are they particularly harmful for a country like India? (Answer in 150 words) 10

Invasive Alien Species refers to Plant or Animal species foreign to a particular area but which when introduced outcompetes the naturally occuring species and forms a dominant position in the local ecosystem. For eg. Water Hyacinth or Tuliflora in India.

Reasons being Growth

1) Most common cause is introduction by human activities.
2) Trade, Globalisation and Migration biggest factors.
3) Can also be introduced for economic exploitation For eg Eucalyptus in India.

Reason behind Spread

1) Can prove more hardy or adept than locales species. For eg. Congress Grass is a weed which is more durable so invades and grows throughout India.

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2) Can Outcompete other species. For eg. Eucalyptus more adept at absorbing ground water so thrives but also kills competition by reducing water availability.

3) May have no natural predators in the region to limit its growth.

Harmful effects in India

1) Loss of local biodiversity and consequent economic, ecological and cultural impact.

2) Can cause harm to soil nutrient capacity.

3) May reduce water table drastically. Eg Eucalyptus.

4) May choke water bodies. Eg. Water Hyacinth covering lake surface killing other species by reducing oxygenation.

5) Can Cause diseases. Eg Dengue bearing mosquitoes are alien to India.

Seeing these harms, IUCN has estimated Invasive Alien Species to be in the top 3 causes of biodiversity loss and extinction over the least few decades.

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11. क्षेत्रीय जलवायु और स्थानीय पारिस्थितिक तंत्र पर हिमालय पर्वत श्रृंखला के प्रभाव का आकलन कीजिए। (उत्तर 250 शब्दों में दीजिए)

Assess the influence of the Himalayan mountain range on regional climate and local ecosystems. (Answer in 250 words) 15

The Himalayan Mountain Range is a ~~Block~~ Fold Mountain Range formed by the convergence of the Indo-Australian Plate with the Eurasian Plate. The resultant upliftment of Tethys Sea Rocks led to formation of youngest, highest peaks in the world, a process continuing till today.

The Himalayan Mountain range spans from ~~Pak~~ Afghanistan, Pakistan, India, Nepal, Bhutan, China till Myanmar from West to East.

Himalayan Influence on Regional Climate

1) Prevent cold Siberian winds from reaching plains of North India leading to hot summers and mild winters in the subcontinent.

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2) Key role in formation and location of Inter Tropic Convergence Zone (ITCZ) which causes monsoons.

3) High altitude leads to Poorbi Monsoon Winds travelling from East to West of the Bay of Bengal branch. ~~instead~~

4) Rain shadow region to North in Ladakh and Tibet.

5) Melting of glaciers lead to great river systems of Indus, Brahmaputra and Ganga and their tributaries.

Himalayan Influence on Local Ecosystems

PROVISIONING EFFECT:

1) Timber, pine, and other temperate trees and their products.
2) Apple orchards, strawberries, and other high altitude fruits.
3) Tea plantations in North Eastern Himalayas.
4) Alluvial soil in North Indian plains and rivers water to sustain agriculture there.

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REGULATING EFFECT:

1) Climate Control
2) Carbon Sequestration in Glaciers.
3) Flood Control
4) Water purification.

SUPPORTING SERVICES:

1) Carbon cycle and other mineral cycles.
2) Production of Oxygen via Photosynthesis
3) Perennial rivers for Plains.

CULTURAL EFFECT:

Himalayas have great religious significance across religions. Hinduism has pilgrimage sites such as Vaishno Devi or Amarnath Yatra; Sikhism has Manikarna Sahib; Buddhists consider Tibet to be home of Dalai Lama etc.

Himalayan Tourism - Trekking; Winter Sports like Skiing in Gulmarg etc.

However, Himalayas are threatened by climate change and it is imperative that the world in general and the region in particular take steps to preserve this delicate and fragile ecosystem.

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12. भूमध्यरेखीय क्षेत्र में पाई जाने वाली जलवायुविक और वानस्पतिक विशेषताओं को वर्णित कीजिए। ये इस क्षेत्र में स्थित देशों के समग्र विकास को कैसे प्रभावित करती हैं? (उत्तर 250 शब्दों में दीजिए)

Outline the characteristics of the climate and vegetation in the equatorial region. How do they affect the overall development of countries lying in this region? (Answer in 250 words) 15

Equatorial region is the region around 10°N and 10°S band of the Equator comprising of countries like Peru, Brazil, Congo etc.

Climate and Vegetation of Equatorial Region

1) High Rainfall due to evaporation of water due to Insolation.

2) Frequent thunderstorms due to low pressure high temperature.

3) Heavy humidity due to rainfall.

4) 2 seasons annually, wet and dry.

5) ~~Not much~~ annual range of temperature. Small difference

6) Rainforests type vegetation with ~~trees~~ Evergreen trees like Mahogany, Teak etc

7) Soil is acidic due to low decomposition of litter.

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8) Epiphytes present due to heavy canopies preventing sunlight from reaching ground level.

9) Extremely biodiverse with many Biodiversity hotspots. Eg. Amazon rainforests of Brazil.

10) Soil is not nutrient rich so does not support intensive agriculture.

Effect on Overall Development of Equatorial Countries

Economic Impact :

1) Not conducive for food crops.

2) Plantation agriculture practiced or can be supported by soil characteristics. Eg. Palm Oil or Rubber in Malaysia.

3) Export crops like Cocoa, Coffee etc. require unique characteristics of high temperature and humidity. For eg. Coffee plantations in Brazil or Sugarcane in Cuba.

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Cultural Impact : Support many tribes living symbiotically with rainforests. Eg. Uncontacted tribes in Amazon.

Tourism Impact : Wildlife reserves extremely popular due to huge endemic biodiversity species richness.

Ecological Impact : Rainforests provide 4 types of Ecosystem Services to the countries :-
Provisioning [Medicine, Wood, Food etc.] ;
Regulating [Climate, Rainfall, Flood Control etc.] ;
Cultural [Tourism, Religious etc.] ;
Supporting [Nutrients cycling, Soil formation etc.].

Thus, we can see the important role played by equatorial climate in the makeup of the nation.

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13. विश्व भर में पर्माफ्रॉस्ट क्षेत्रों की पहचान कीजिए। पर्माफ्रॉस्ट का पिघलना वैश्विक जलवायु और पारिस्थितिक तंत्र के लिए एक व्यापक खतरे के रूप में कैसे उभरा है? (उत्तर 250 शब्दों में दीजिए)

Identify the permafrost regions around the world. How has thawing permafrost emerged as a significant threat to global climate and ecosystem? (Answer in 250 words) 15

Permafrost refers to areas where the temperature on average remains well below freezing point of water i.e. 0°C. This leads to situation when ground never thaws and is permanently frozen.

Permafrost Regions Globally:-

1) Arctic Tundra.
2) Antarctic Tundra.
3) Alpine Tundra – High altitude sites in areas of Alps, Himalayas etc. ~~where~~ above treeline level.

Reasons for Thawing Permafrost

1) Global temp increase due to anthropogenic climate change activities leads to higher temperatures

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and thawing of the ground.

2) Local temperature increase due to human activities like tourism activities in those regions.

Threat caused by Thawing Permafrost

1) Permafrost is an important Carbon Sink as it sequesters carbon in soil away from atmosphere. Its thawing ~~may~~ will increase global CO_2 stock and accelerate global warming.

2) Reduced Albedo Effect increases global warming.

3) Many unknown disease causing microbes/viruses may be released from the ~~Permfro~~ Permafrost. Eg. Anthrax virus in Siberia observed recently.

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4) Soil binding will loosen leading to topsoil erosion after thawing.

5) Many animals and plants like lichens depend on the permafrost ecosystem and will be negatively impacted.

6) May lead to changes in global climate as the High Pressure Belt of Poles may weaken leading to changes in Ocean Currents and Wind Patterns with consequent effects on climate.

Thus, we can see this threat. Some urgent steps to contain this are:

a) Global Collaborations in Arctic Circle and Antarctic Circle Countries.

b) Proper adherence to Paris Climate Agreement norms to limit increase in global average temperature to 2°C below Pre Industrial Revolution temperature.

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14. मरुस्थलों में विशाल संसाधन क्षमता विद्यमान है जिसे मानवीय उपयोग के लिए निष्कर्षित किया जा सकता है। विवेचना कीजिए। थार मरुस्थल की खनिज परिच्छेदिका (mineral profile) का सविस्तार वर्णन कीजिए। (उत्तर 250 शब्दों में दें)

Deserts have a huge resource potential which can be extracted for human use. Discuss. Elaborate on the mineral profile of the Thar desert. (Answer in 250 words) 15

Deserts refer to areas with minimal precipitation, annually below ~~25~~ 25cm rainfall average, and a hostile environment for living beings. Deserts can be both Hot (Thar, Gobi, Sahara etc.) or Cold (Ladakh).

Resource Potential of Deserts

1) Certain trees and animals found can be useful for humans. For eg. Date trees ~~Date~~, or Camels from whom milk can be sourced.

2) Many natural minerals can be mined ~~be found~~ in deserts like Lithium in Bolivian desert or the Khetri Mines of Rajasthan.

3) Good ~~source~~ site for renewable energy generation sites like Solar Power in

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Mojave Desert, USA or Wind Power Turbines in Rajasthan. This is because of abundance of sunlight annually, low land cost and prevailing local winds.

4) With proper irrigation desert land can be converted into fruitful ~~agr~~ agricultural land.

5) Sand dunes are a tourism attraction.

6) Desert lands are also useful for experimental scientific work such as nuclear ~~expo~~ explosions in Jaisalmer.

Mineral Profile of Thar Desert

Thar desert in Rajasthan is the only hot desert in India. It has a mineral base of certain alloys of Tin and Copper which is present in Khetri Mines and used

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since Harappan times to make Bronze.

There are also iron mine sites alongwith nickel and tin.

There is also Rock Salt present and Salt Mining takes place on a vast ~~sal~~scale in Sambhar Lake near Jaipur.

Thus, we can see the great potential for development present even in the desert areas.

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15. भारत में आई.टी. उद्योग, जो पहले कुछ प्रमुख शहरों में ही केंद्रित था, का अब टियर-2 और टियर-3 शहरों की ओर उल्लेखनीय विकेंद्रीकरण हो रहा है। कारण बताइए। (उत्तर 250 शब्दों में दें)

The IT industry in India, once centered in a few major cities, is now witnessing significant decentralization towards Tier-2 and Tier-3 cities. Provide reasons. (Answer in 250 words) 15

The IT revolution in India started in Bangalore and soon spread to Hyderabad and later Gurgaon. However, now it is witnessing further decentralisation with spread majorly observed in Tier 2 and Tier 3 sites like Pune, Cutta Bhubhaneshwar, Noida, Jaipur etc.

Reasons for this Decentralizing Trend

1) The high costs of living in the original IT Hubs with Bangalore becoming one of the most expensive real estate locations of the country.
2) New startups unable to afford offices in these sites.
3) Lack of Space in original sites.

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4) Higher salaries demanded in Bangalore hires compared to say Pune hires for similar workers.

5) Covid accelerating shift due to Work From Home trend where companies found it feasible for employees to work remotely so they were able to decentralize.

6) Other State Governments giving generous subsidies to attract IT firms to them. Eg. Kolkata setting up IT Hub in Newtown where CISCO, TCS have set up offices.

7) More startups being formed in IT sector catering to tier 2 or tier 3 cities so they have offices in those areas.

8) Freelance culture in IT Sector

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where contractors from tier 2-3 cities live and work globally.

9) Unsavoury regionalist tendencies in Bangalore driving away migrants

By and large, this is a positive trend for India's Service Sector Revelopment and it is to be hoped that the trend can lead to increase in per capita GDP and better quality jobs for the demographic bulge.

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16. आकस्मिक सूखे की बढ़ती घटनाओं से उत्पन्न चुनौतियों का शमन करने के लिए आवश्यक उपायों पर चर्चा कीजिए। (उत्तर 250 शब्दों में दीजिए)

Discuss the measures required to mitigate the challenges presented by the increasing occurrences of flash droughts. (Answer in 250 words) 15

Flash droughts are a recent challenge where droughts are characterised by Rapid Onset, great Intensity and Severe Impact over a Relatively Short Timescale; usually a few days or weeks.

Unique Challenges of Flash Droughts

1) Short timescale leads to lack of preventive action unlike other traditionally understood droughts like hydrological or meteorological drought where authorities have more time to prepare for and even prevent it if possible.

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2) Great intensity of these droughts may cause long term impact on Soil quality and nutritional status.

3) Hard to predict or take mitigative measures against.

Measures Required to Mitigate Flash Droughts

1) Active monitoring of all indicators like Weather Monitoring Systems; Weather indicators of Humidity; Aridity; Wet Bulb Temperature; Soil Moisture levels; Historical trends of these indicators etc. to be able to predict the occurence as much in advance as possible.

2) Reduce reliance on rain fed irrigation by providing canals, borewells etc.

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3) Climate appropriate agricultural and industrial practices to be adopted so that water stress can be minimized

4) Use groundwater replenishing tactics like recent success story of groundwater recharge in Telangana using ancient Tank System

5) Take appropriate relief measures quickly at the onset of flash droughts.

6) Ensure provision of basic human requirements of food and water in case of occurence by setting up shelters and ~~action~~ volunteer rescue teams.

Flash droughts are another manifestations of the extreme weather events brought along by the erratic effects of Climate Change and there needs to be a concerted efforts to adapt to it so that we can minimize the damage it causes.

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17. भारत में हीट वेव के प्रति सुभेद्य आबादी के संरक्षण में मौजूदा हीट एक्शन प्लान (HAPs) की प्रभावशीलता का परीक्षण कीजिए। (उत्तर 250 शब्दों में दीजिए)

Examine the effectiveness of the existing Heat Action Plans (HAPs) in protecting the vulnerable population against heat waves in India. (Answer in 250 words) 15

India is one of the most vulnerable countries to the impact of Heat Waves with National Crime Records Bureau (NCRB) data showing over 10,000 deaths due to Heat Waves in the last decade.

The data further showed that the most deaths were caused in Andhra Pradesh while Uttar Pradesh was the state with the highest number of Heat Wave days, 219 in 2023.

Risks Caused to Vulnerable by Heat Waves

1) Heat waves are defined in relative (higher than usual average temperature) and absolute terms as well. Thus, they can impact any part of India, even traditionally cooler areas like Dehradun suffered from heat waves last year.

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2) The Urban Heat Island effect exacerbates the danger to Urban Poor ; Urban Homless; Gig Economy Workers toiling in heat such as Food Delivery Employees ; Outdoor Workers at Construction Sites etc.

3) Rural population too is vulnerable due to unseasonal heat effect and exposure to Sun.

4) The unscientific way in which construction takes place leading to zero ventilation houses.

5) High cost of electricity in peak summer and cost of Air Conditioners.

6) Climate Change increasing severity of Summer Climate.

Effectiveness of Heat Action Plans

Good / Positive Impact : 1) Early onset detection and alert mechanism of government to declare alerts

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2) Regulations around preventing undue exposure to harsh weather for workers after dark.

3) Closure of schools, change in school/office timings to mitigate impact.

Negative Impact: 1) Purely reactive plan: all steps to be followed to mitigate impact but none to prevent it.

2) Can work on building codes; zoning laws; tree forestry in urban sites etc. to reduce urban heat island effect.

3) Construction work can be planned such that summer months are off limits

4) Plans to be more active than reactive.

Ultimately, the effectiveness of HAPs can be observed by the fact that neither are we able to prevent or reduce Heat Wave Days or stop it from killing the vulnerable population.

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18. भारत द्वारा अपने आपदा प्रबंधन दृष्टिकोण को राहत-केंद्रित और प्रतिक्रियावादी दृष्टिकोण से अधिक व्यापक और सक्रिय दृष्टिकोण में बदलने की आवश्यकता है। परीक्षण कीजिए। (उत्तर 250 शब्दों में दीजिए)

India needs to shift its disaster management approach from relief-centric and reactionary to a more comprehensive and proactive one. Examine. (Answer in 250 words) 15

Disaster Management Approaches have undergone a paradigm shift in recent times (especially Sendai Framework) from being relief centric and reactive to proactive comprehensive ones focusing on Preparedness, Response and Rehabilitation as well.

Issues in India's Reactive Approach

1) Increased loss of life and property: Lack of prevention causes grave impact. For eg. Non Earthquake resilient buildings during Bhuj Earthquake collapsed leading to grave losses

2) Higher economic Costs: The cost of rehabilitation after disasters is higher than preventive measures.

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3) Inefficient Response: Lack of training leads to reactive response culture. Eg After Surat Fire at Gaming Zone the reactive administration belatedly responded by enforcing fire safety norms in other buildings.

Benefits of Comprehensive and Proactive Disaster Management Approach

1) Reduces loss of life and damage to property: Can be seen in the Cyclone preparedness approach where the proactive system reduces deaths by a fraction of 100 compared to earlier tragedies. Eg. Supercyclone in Odisha in 90's killed 10,000 compared to much fewer deaths in recent cyclones.

2) The preventive measures like preparedness plans, safety drills can help reduce impact.

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3) Vulnerability Analysis : Can lead to prevention of disasters in first place.

4) Capacity Building : Improves response to disasters by augmentation of human, technological and material capability.

5) Global Collaboration : Can provide early warning. For eg. Early Tsunami Detection System in Indian Ocean present now.

Thus, we can see that India's disaster response suffers from major fundamental flaws. Due to increasing threats faced by Subcontinent as a result of climate change we need to reduce our vulnerability to these threats by adopting this proactive approach.

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19. भारत के जैव-विविधता संरक्षण में नृजातीय और देशज समुदाय महत्वपूर्ण भूमिका निभाते हैं। कैसे? (उत्तर 250 शब्दों में दें)

Ethnic and indigenous communities play a significant role in the biodiversity conservation of India. How? (Answer in 250 words) 15

Ethnic and Indigenous communities have a unique, symbiotic relationship with their natural ecosystem be it Plants, Animals or even non living components like Rocks, Mountains or Rivers.

Role played in Biodiversity Conservation

1) Tribals in forests in Jharkhand ~~like~~ Chattisgarh like Gonds or Santhals have a unique cultural connection with the forests and help preserve many plants and animal species by preventing over exploitation.

2) Flagship Species Protection by ethnic tribes in Nagaland in form of

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Amur Falcon Festival plays a keyrole in their conservation.

3) Traditional knowledge of herbs with useful medicinal or otherwise properties can lead to their proliferation and preservation of greater biodiversity.

4) Certain pastoral tribes such as Gaddi Graddis in Himachal cause control of Wild Grass in Pastures which allows other species to also grow

5) Certain sites sacred to ethnic communities like Sholas (Groves) in Nilgiris are adopted as Community Reserves and preserved.

6) Government regulation also recognises this role and grants rights to certain tribes in terms of Forest

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Land Rights Acts.

7) Certain Slash and Burn type activities can also cause biodiversity spread as the burnt area gets colonised again and goes through succession.

Thus, we can see the close relationship between ethnically rooted communities in India with the biodiversity around them. This traditional knowledge should be utilized in our conservation plans and incorporated in any such plans.

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20. नेट जीरो उत्सर्जन की ओर बढ़ने की आवश्यकता क्यों है? भारत ने नेट जीरो लक्ष्य को प्राप्त करने के लिए क्या रणनीति अपनाई है? (उत्तर 250 शब्दों में दें)

Why is there a need to move towards net zero emissions? What strategy has India adopted to achieve the net zero target? (Answer in 250 words) 15

Net Zero Emissions is an energy usage strategy where any Carbon Emission in the Environment is balanced by an equal amount of Carbon recovered from environment and sequestered away. This sequestration may be in form of Carbon Stock in Trees; Carbon Capture in Mines etc.

It has gained global relevance with many advanced economies pledging to become ~~Net~~ net zero emitters within a certain timespan. For eg. UK by 2050.

Need for Net Zero Emissions

1) Carbon Dioxide is a major contributor towards global warming

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2) Global Warming causes Climate Change with devastating ecological, economic, societal and humanitarian impact.

3) Carbon Dioxide (CO_2) in atmosphere has increased drastically due to Industrial Revolution and IPCC reports state that current levels of CO_2 emission could lead to 2°C rise above Pre Industrial Revolution levels by 2100.

4) Net Zero Emission only way to slowdown the impact of Greenhouse Effect.

5) According to Principle of Common but Differentiated Responsibility [CBDR] advanced economies enjoyed the benefits of polluting Globall Commons and became developed but developing economies cannot be forced to curtail economic advancement in name of climate change response. So need of the hour is for advanced countries to become Net Negative not just Net Zero.

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India's Strategy for Net Zero

1) India has adopted self imposed ambitious targets under Paris Climate Change Agreement norms and also achieved them in interim targets

2) India aims to ~~reduce~~ increase the amount of Carbon sequestered in Forests

3) India aims to reduce Carbon Intensity of GDP growth by adopting a more renewable centric energy mix from its current coal dependent one. Global alliances like International Solar Alliance are steps in this direction.

Thus, India and the World need to balance the twin aspirations of Growth and Development - together Net Zero Status is a huge positive step towards that goal.

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